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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

INTRODUCTORY ADDRESS
on Research in the Medical Services. By Sir WILLIAM B. LEISHMAN, F.R.S. 791

ORIGINAL ARTICLES.
The Toxic Effects of Lead Administered Intravenously. By Prof. W. BLAIR BELL, B.S., M.D., W. R. WILLIAMS, M.D., F.R.C.S., and L. CUNNINGHAM, M.B., M.R.C.P.—(*Illustrated*).. 793
Gastro-Jejunal Ulcer. By A. J. WALTON, M.S., F.R.C.S. 800
The Value of Soft-Ray Technique in Pulmonary Radiography. By BERNARD HUDSON, M.D., M.R.C.P., and PERCY G. SUTTON 805
A Note on Chronic Endocervicitis: The End-Results of Operation. By JOHN WILLIAM BURNS, M.D., F.R.C.S. 806

MEDICAL SOCIETIES.
Medical Society of London: Osteopathy, Chiropractic and Other Cults, and Medicine 807
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REVIEWS AND NOTICES OF BOOKS.
Handbook of Diseases of the Throat, Nose, and Ear. Edited by A. Denker and O. Kahler.. 810
An Introduction to the Mind in Health and Disease. By T. Waddelow Smith, F.R.C.S. 810
Old and New Viewpoints in Psychology. By Prof. Knight Dunlap 810
Experimental Investigations into the Emotional Life of the Child Compared with that of the Adult. By Helga Eng. Translated by George H. Morrison, M.B. 811
Perkussion und Auskultation. By Prof. Hermann Vierordt 811
Diagnostik und Therapie der Knochen- und Gelenktuberkulose. By Dr. Eugen Kisch 811
Contributions to the Study of Tuberculosis by the Research Department, National Jewish Hospital for Consumptives 811
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Tuberculosis: Its Prevention and Treatment. By J. Laird, L.R.C.S. & P.I. 812
Veterinary Diagnosis and Treatment. By G. E. Jorgenson, M.D., N.D.V. 812
Quarterly Journal of Experimental Physiology 812

LEADING ARTICLES.
PHYSIOLOGY AND ORTHOPAEDICS 817
ANOMALOUS APPETITES .. 818
THE VOLUNTARY HOSPITALS OF GREAT BRITAIN 818
CHIROPRACTIC 819

ANNOTATIONS.
Research in the Medical Services 819
The Teaching of Health... 819
Perspective in X Ray Interpretation 820
The Relief of Leeds University 821
I-Em-Hetep—(*Illustrated*). 821
Alcoholism as an International Problem 822
Criteria of Pathogenicity.. 822
Home Service Ambulances 822
Paratyphoid Traced to Ice-Cream 823
The Panel Conference and the Ophthalmic Specialist 823
The Sanatorium and After 823
Immunisation Against Scarlet Fever 824
Difficulties and Dangers of Insulin 824

MODERN TECHNIQUE IN TREATMENT.
CLXIII.—Treatment of Hydrocele, Hæmatocele, Varicocele, and Spermatocele. By PHILIP H. MITCHINER, M.D., M.S., F.R.C.S. — (*To be continued*)..... 825

SPECIAL ARTICLES.
Imperial Social Hygiene Congress, Wembley: Social Hygiene in Relation to the Mercantile Marine. — White Slave Traffic. — Treatment of Venereal Disease in England 813
Workshops for the Tuberculous. Health Week Conference: The Hatton Garden Workshop..... 815
Vaccinia and Variola: Dr. Mervyn Gordon's Studies of the Viruses 826
Royal Commission on National Health Insurance: Society of Apothecaries of London.—East of Scotland Dentists' Panel. — Association of Poor-law Unions 828
The London Medical Exhibition: Drugs and Foods. —(*To be concluded.*) 829
Bucharest: Reform of the Workmen's Compensation Act in Roumania .. 831
Ireland: Medical Men in the Senate of the Irish Free State 832
The Motor Show at Olympia: Examples of Modern Practice.—Cars for the General Practitioner.—(*Illustrated*).... 833
Infectious Disease in England and Wales 838

CORRESPONDENCE.
The University of Leeds: The Medical Faculty (Duke of Devonshire, and Prof. J. Kay Jamieson). 838
Occupational Therapy (Miss M. Gribble)..... 838
What Constitutes a Cure in Psychotherapy (Dr. D. Yellowlees)..... 839
Luminal or Borax in Epilepsy (Dr. Philip Figdor) 840
Luminal in Epilepsy (Dr. A. Williams-Walker).... 840
Sticking-Plaster Dermatitis (Dr. R. Prosser White).. 841
The Fouling of Footways by Dogs' (Dr. Walter Rigden)..... 846

THE SERVICES.
Royal Naval Medical Service. — Royal Army Medical Corps. — Royal Air Force.—Indian Medical Service 832

OBITUARY.
Arthur Gordon Jenner, M.R.C.S., D.P.H..... 841
Percy Robert Cooper, M.D., F.R.C.S. 841

MEDICAL NEWS
University of Cambridge.. 842
Royal College of Physicians of London 842
Royal College of Surgeons of England..... 842
Victoria University of Manchester..... 842
Fellowship of Medicine and Post-Graduate Medical Association..... 842
Somerset's Mental Defectives 842
Glasgow Post-Graduate Medical Association 816
Medical Golfing Society... 838
Medical Sickness, Annuity and Life Assurance Society, Limited..... 838
Medical Officers of Schools Association..... 842
Clerical, Medical, and General Life Assurance Society 842
Dental Board of the United Kingdom 842
Liverpool Medical Institution 842
New Stoke-on-Trent Poor-law Hospital 842
Tuberculosis Society..... 843
Devon and Exeter Medico-Chirurgical Society 843
University of Edinburgh: Cameron Prize Lectures. 843
Central London Throat, Nose, and Ear Hospital. 843
Liverpool: Visit of the Minister of Health 843

NOTES, COMMENTS, AND ABSTRACTS.
Hospitals, General and Special. By N. BISHOP HARMAN, M.B., F.R.C.S. 845
The Ideals of Social Hygiene 846
A Local Public Health Guide 846

Medical Diary 843
Appointments.—Vacancies 844
Births, Marriages, Deaths 844

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Introductory Address
ON
RESEARCH IN THE MEDICAL SERVICES.

Delivered to the War Section of the Royal Society of Medicine on Oct. 12th, 1925,

BY LIEUT.-GENERAL SIR WILLIAM B. LEISHMAN, K.C.B., K.C.M.G., F.R.C.P., F.R.S.,
DIRECTOR-GENERAL, A.M.S.; PRESIDENT OF THE SECTION.

AT the outset it is my purpose, if I can, to remove from your minds the impression that research is of necessity an esoteric matter, confined to mysterious laboratories, and that it can be carried out only by professors and specialists who have given years of work to their subject, who are a "peculiar folk," and talk in a tongue "not understanded of the people." It is true that much experimental inquiry demands expert knowledge, special equipment, and comes within the opportunity of comparatively few of us, but I prefer to give to the word research a much wider significance and to take it to cover any means by which we, of set purpose and on a deliberate plan, strive to add to the existing knowledge of the cause, the prevention, and the treatment of disease. I have on more than one occasion spoken on this subject and have urged in connexion with it a far closer collaboration for this purpose between clinician and specialist than exists at present.

THE PRESENT POSITION.

Let us examine in some detail our position as medical officers of the fighting services *vis-à-vis* this question of research. It is not my intention to dwell on the admirable research work which is in continual progress in our respective colleges and laboratories, nor to point out the moral of the incalculable benefits which the Services have enjoyed as a result of much of that work. This would leave no time to deal with anything else, and I prefer to speak of the present, and still more of the future, rather than of the past.

I am bound to admit that the present moment does not appear to be an ideal one for suggesting that, with our diminished personnels, over-worked officers should voluntarily add to their heavy work; but, after all, we are only passing through a period of depression, and such periods, familiar enough to those of us with long service, pass and have usually been followed by conditions better than those that preceded the negative phase.

Be that as it may, I know I am not exceptional in holding as a firm belief that there is a profound difference between work which, however conscientious and good, is more or less of a routine, and that which is varied and which brings with it continual new interests. Anything in the nature of research, understood in the broad sense I mentioned just now, belongs definitely to the latter category, and has the further great attraction that it brings us into that closer intellectual sympathy with our colleagues which is one of the results of the pursuit of a common purpose.

Advantages of the Services.

Let us now look for a moment at the very exceptional facilities and opportunities which we of the Services possess; they are indubitable and, I believe, far greater than those enjoyed by the great majority of our confrères in civil life. First, and most important, our material. Whether sailors, soldiers, or airmen, those of whom we have the honour to be in medical charge become, if we wish, our friends and comrades throughout their service; where they go we go, and their health and physical well-being is not only our charge but is to us an open book throughout their service, wherein we may read, and perhaps even write, as we will. From their examination as recruits till they leave the colours their physical standards and their medical history are recorded and they are under our daily supervision. What would not our civil brethren often give for such an intimate knowledge of the past history of a patient! There is nothing like it, except perhaps in some schools and institutions and in relation to some of the notifiable diseases such as tuberculosis. The fact that the men, like ourselves, are subject to discipline brings in another element of great value, inasmuch as it renders possible such things as systematic or periodical examinations and the employment of uniform standards of procedure, which are, as a rule, totally impracticable elsewhere.

As to the opportunities for medical research in connexion with this exceptional material, there is no need for me to remind my brother officers of both the abundance and the variety of the morbid conditions which come under our observation in officers and men and among their wives and families. This is less appreciated, unfortunately, by many outside the Services where there are still many misconceptions as to both the volume and the nature of our work, and it is not rare for us to read, or to hear, that our opportunities are meagre, that we see but the commoner ailments to which healthy young manhood is liable, and that the bulk of our experience is in the treatment of minor complaints and venereal diseases. This was not true even when I joined the Army in 1887, and nowadays, in that Service, the volume and importance of the medical and surgical work compares favourably with that of all but the largest of the metropolitan or provincial hospitals. The change of policy which has resulted in the concentration of the troops in a smaller number of large stations has been followed naturally by a similar concentration of the medical organisation—greatly to the benefit of the Army, the taxpayer, and ourselves. I am, naturally, not so intimate with the situation in the Navy, the Air Force, and the Indian Medical Service; but I have good reason to know that they are in most matters as favourably situated as ourselves, while the records of past meetings of this Section bear abundant evidence to the good use they make of their opportunities.

Medical and surgical material, then, is abundant and varied, both at home and abroad, and we are most favourably placed to observe our cases from start to finish and, if we wish, to follow them up afterwards.

The Value of Organisation.

Turning to another side, we can readily make use of our respective organisations for the employment of the technical aids to diagnosis and treatment with which medical science has been so greatly enriched in the last 30 years; and one acknowledges gratefully that we are able to maintain our equipment for theatre and laboratory in a condition well abreast of all modern requirements. Whatever tests may be considered as helpful to diagnosis or as accessory to treatment are readily available and, if the specialist and his tools cannot be brought to the patient, the patient, if necessary, is transferred to the hospital where he will find the pathologist, the radiologist, or other expert whose skill is needed. Further, should we feel that our own resources in skill or experience are insufficient in a difficult case we are indeed fortunate at home in being able to call upon one of our distinguished consultants, whose ready and valuable help it is impossible to acknowledge adequately. We are thus able, in all but the most isolated stations at home or abroad, to investigate fully all our cases, to observe their progress accurately, and to make permanent records in relation to any facts of importance. These are great assets for any medical man, and, if we do not benefit by them to the full, the fault is our own.

Such, then, being the present position as regards material and facilities in the Army Medical Service, and also, I am confident, in the sister Services, let us turn to the use which we are making, or may make, of them to further medical science by observation and research.

THE OUTLOOK FOR THE FUTURE.

As to the past, each Service has a record of research of which it has every reason to be proud, and even our youngest sister has lost no time in making her permanent marks on medical progress. As I have said, I do not intend to enumerate even the more important and outstanding of these researches, but will only point out that, for the most part, they were the work of men who had had the advantage of special training in some line and who enjoyed special facilities, either in the way of exceptional access to fruitful material or in the use of well-equipped laboratories. At the same time, this was far from being the case in all instances, especially in the past when specialism and laboratories were rare, and many most valuable contributions to knowledge were made by men who had to rely solely on themselves and had to create and utilise their own opportunities.

What would not many of our forbears have given to profit by the benefits which we have inherited? Apart from the volume of new knowledge which lies to our hand, we all enjoy the further inestimable privilege of going through an admirable post-graduate course, just at the moment in our professional life when we can benefit by it best; that is, when we are old enough to have acquired a wide experience of men and of other lands and are still young enough to retain energy and ambition. Whether or no our professional predilections are sufficiently defined to lead us to seek for further special instruction in a particular branch, we are all of us, at the least, given the chance of bringing ourselves well up to date in our rapidly moving profession.

The Opportunities.

The point which I now wish to make is this. In my view, everyone who has reached this stage in his Service career is well equipped to make valuable original observations on many lines of professional work, either alone or with the readily available help of his specialist comrades. Not that I would for a moment suggest that such work need be deferred till then, but one recalls how, in one's earlier years, one feared to slip up by publishing observations or views which, through our inexperience, might either prove not to be novel or to have been inadequately controlled and documented.

Apart from the desirability of attempting such research work for its own sake and for the general advancement of our profession, there is, I imagine, little need for me to emphasise its value to the individual. Not only would it make his professional life infinitely more interesting, but there is always the chance that a particular investigation might end in bringing to light something of great importance, one result of which would be, if justice is done, as it usually is in the end, that the investigator's name would become associated with the observation and he would find he had taken a definite step forward out of the class of "also ran." I would, however, warn anyone who, on the strength of this advice, felt inclined to try his wings in this direction that two qualities are essential to any chance of success—absolute honesty and infinite patience. One needs really something of the qualifications of the fly-fisher, for whom there is such hope in every cast that it will carry him happily through a blank day, leaving him with cheerful anticipations of the morrow.

One other word of counsel. Much careful and good observational work fails to obtain full acceptance and credit for lack of record of some observations or tests which a critic might consider essential to the acceptance of the conclusions. In such cases collaboration with a specialist colleague is most desirable, and is most valuable to each.

INDIVIDUAL RESEARCH: PLANNING THE WORK.

Let us now consider for a few moments what kind of inquiries might be set about and in what manner the material which lies to our hand might be utilised. You will, perhaps, forgive me the presumption of attempting to advise beginners in this matter on the slender ground of having been, in my past life, a specialist in one branch. Putting myself, as far as I can, in the position of a young officer who has not as yet attempted anything of this kind, I should begin by asking myself "In what line of professional work am I most interested and would most wish to become expert?" The answer, I am sure, would be clear and prompt. I should then sit down to think over the many branches of that subject, finally selecting one or two of them for a closer scrutiny. I should lay special stress on the cases which, in my own experience, had puzzled me and in which, for example, I had felt unsatisfied as to the current explanations of their ætiology or in which the treatment in common use had proved, in my hands, unsatisfactory. It would not be long, I fancy, before a certain number of such instances occurred to one. Of these I should select one or two and proceed to soak myself in the recent literature of the subject, incidentally subscribing to some of the technical journals dealing with it. One would soon realise that many others had encountered the same difficulties and would find oneself stimulated by their new points of view and their own conclusions. By degrees you would, I am sure, find yourself becoming more and more critical of these conclusions, so often expressed with dogmatic confidence, and you would begin to ask yourself "Why does this fail to convince me?" or "How am I to reconcile this result with what has been recorded by X, Y, or Z?" Next in order comes the stage at which one begins to think "Would it not be possible to settle the point if I were to do—what?" If one accepts the mental challenge *that* is the starting-point of a specific piece of investigation, and one must then begin to plan the campaign. Assuring oneself, in the first place, that sufficient material is already available, or can be made available by a little private organisation, you ask "How can I make and record these observations in such a way that a clear-cut answer may be obtained to the questions I have asked myself?" In this it must be kept clearly in mind that you have to convince not yourself only but others who, when they come to read your work, will be quick to notice the absence of certain relevant details or the inadequacy of your "controls." It is impossible to take too much trouble over this planning of the inquiry, for, if every fallacy is not thought of beforehand, and guarded against as far as possible, one may waste much effort and have to start afresh.

Unexpected difficulties, failures, interruptions, are the daily bread of the inquirer, but, if met with cheerful philosophy, and still more if one is wise enough to have prepared more than one string for one's experimental bow, one may confidently anticipate reaching a result worth communicating to a society or journal and will have achieved an altogether new outlook on professional work and acquired that admirable thing a new interest in life.

The Fallow Fields.

Each man has different tastes and different aptitudes, but, in the extremely varied work which falls to us in the Medical Services it would indeed be strange if one could not find, within working distance, both the subject and the material for commencing such an inquiry as I have outlined. The tropical diseases are bristling with unsolved problems of ætiology, of treatment, and of prevention, and our opportunities in this line when on foreign service are unbounded. The Navy and the Air Force have, I take it, no lack of unsolved problems special to themselves, while in the Army there are a host of morbid conditions, some of them of first-grade military importance, in which our special facilities should give us a better chance of adding fresh knowledge or of clearing up difficulties than falls to the lot of most of our brethren. Again, to the considerable number of us to whom preventive medicine makes a stronger appeal than clinical work, the difficulty will be to choose one out of the hosts of problems which are presented to us by the rapid development of this subject.

COLLECTIVE RESEARCH.

So far I have been speaking of the individual inquirer who wishes to choose and follow up for himself a particular subject. Let me now say a word or two on collective research, a method of inquiry which so far has not been very widely used in the Services. By this is meant that a selected problem is investigated by a number of workers in different places who follow an agreed plan and conform to certain rigid standards as to the material and the methods to be employed. I have always thought that there were great possibilities in connexion with this method and that the conditions which should make for success were exceptionally favourable in the Medical Services. In the case of the Army our research organisation is readily adaptable to such a method, and a certain number of such investigations have been commenced since the Directorates of Pathology and Hygiene were created. As no doubt you are aware, in each of these subjects our Director has the advantage of a technical Advisory Board to which highly qualified civilian experts have been nominated. At their meetings subjects possibly suitable for such research are examined and, if one is chosen, the details of the inquiry, the methods to be employed, the mode of recording, collecting, and analysing the results, &c., are fully discussed and decided upon. The detailed plan is then communicated to the specialists in suitable commands, who get down to work on a common plan and using a common technique. I may enumerate a few of the pathological subjects so chosen, merely by way of illustration. (1) Influenza: the incidence of Pfeiffer's bacillus in the sick and in contacts, in the presence and in the absence of epidemics. The use of vaccines. (2) Latent sepsis: the value of vaccines prior to operation. (3) Catarrh: inquiry into bacteriology and prophylactic use of vaccines. (4) Typing of strains of diphtheria, cholera, and dysentery bacilli encountered in different countries. (5) The Schick reaction. (6) Parallel testing of the Sigma and Wassermann reactions. (7) Sand-fly fever.

These and other subjects have been explored in this collective way with, in some instances, substantial and encouraging results. I need hardly add, especially in the present difficult times, that we cannot command success; a particular epidemic may dwindle and disappear, or the other material may not be forthcoming in sufficient quantity. More frequently, however, it is one of these inevitable but irritating "exigencies of the Service" which has called a premature halt to a promising line of inquiry. I trust, however, that such efforts may not be abandoned since these collective inquiries are of value not only because they multiply results and tend to accelerate progress, but because the work and results of one observer form a useful check on those of another. Again, the mere fact that workers at a distance from one another are engaged on the same problem, and confronting the same difficulties, stimulates inter-communication and tends to break down that feeling of isolation which may sometimes become so irksome when one is working alone.

Its Value to Civil Medicine.

Before leaving this subject I would add that the method is capable of being of service to our civil brethren. There are many inquiries of medical, physiological, or sanitary importance which, because we are very busy people and because the problems are not perhaps of very direct military importance, we have not undertaken in the Services. At the same time, thanks to the favourable conditions of which I spoke at the beginning of my address, the Army, Navy, or Air Forces offer a field for their investigation under almost ideal conditions of observation and control. We have received, and continue to receive, so much ungrudging help and advice from our civil colleagues that we should, indeed, be ungrateful if we did not in return do everything that we could to assist them, whenever this is within our power. I am glad to know that something has already been done for them in this way, and I hope that we may be able to do more.

As regards research and observation of the more strictly clinical character I may add that, in the case of the Army, we have now the great advantage of the advice and controlling direction of our own consulting surgeon and consulting physician, and I am confident that their assistance and counsel would, if required, always be most readily available.

To conclude, I have been urging upon you that we should endeavour to secure a larger output of medical research from the Services, and have suggested that this is well within the power of many who have not so far embarked on it. I have done so for the following reasons: First, because it is our bounden duty to leave nothing undone which we can do to maintain or improve the health of the fighting forces, and to anticipate and prevent medical catastrophes in the future, not only by utilising new knowledge, but by adding to it. Second, because I know nothing better calculated to maintain a man's professional interests as well as to keep him out of the groove which may become so dangerously deep as our Service advances. Finally, it is only by contributing our full share to medical progress that we can hope to maintain the high prestige gained for our respective Services by those who have gone before us.

THE TOXIC EFFECTS OF LEAD ADMINISTERED INTRAVENOUSLY.*

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No one hitherto has had an opportunity of observing the toxic effects in the human subject of measured quantities of lead administered intravenously at known intervals. The accuracy of the observations about to be recounted makes them of some importance in any consideration of lead poisoning.

The injections, the effects of which we have been able to observe, have been given in the course of the treatment of malignant neoplasia, to which reference has already been made on previous occasions,[1 2] and to which we shall again refer in the next and last paper of this series. In that paper, too, the more detailed procedures in connexion with the administration of lead will be recorded. Here it will be sufficient to give a general outline of the method. Some 200 patients in all have received injections.

METHOD OF PROCEDURE.

The actual form in which the lead has been administered has varied considerably from time to time, but the last 58 cases have been treated almost entirely by intravenous injections of metallic lead in colloidal form. In the early cases lead acetate, lead iodide in a partly colloidal state, and compounds of lead with thyroiodin and with hæmoglobin were used. Before treatment was commenced the blood of every case was carefully examined, and, as far

* This investigation was undertaken on behalf of the Liverpool Cancer Research Committee.

[1] Bell, W. Blair: THE LANCET, 1922, ii., 1005.

[2] Ibid., 1924, i., 267.

as possible, full red and white cell and differential cell counts were made, and the blood-urea and sometimes blood-sugar were estimated. The urine was also exhaustively analysed, and in cases about which there was any doubt as to renal efficiency a urea-concentration test was performed. The hepatic efficiency was also examined, especially in cases in which there was involvement of the liver or jaundice due to extrinsic causes.

During treatment all these methods of investigation were carried out whenever possible at intervals, either after each dose or after every few doses; especially was the blood examined for stippled red blood corpuscles, and the urine for albumin.

SYSTEMS AND ORGANS INVOLVED IN THE TOXIC EFFECTS OF LEAD.

The toxic effects of lead were noted on the following systems and organs: (1) the blood and blood-forming organs; (2) the alimentary system; (3) the nervous system, including the retina; (4) the kidneys; (5) the liver.

FACTORS CONCERNED IN THE PRODUCTION OF TOXIC EFFECTS.

Susceptibility of the Individual.—In general, it has been found that there is a great difference in individual tolerance to lead. Some patients showed signs of poisoning after quite small amounts had been administered, whilst others showed no untoward symptoms, although relatively large quantities had been given.

Body-weight.—It has appeared that the quantity necessary to produce toxic symptoms has varied with the body-weight of the patient; for example, a patient weighing 14 st. can usually tolerate more lead than a patient whose body-weight amounts to 7 or 8 st.

Age of the Patient.—It has also been held that there is an age factor in regard to the rapidity and intensity of the toxic effects of lead. We have found that relatively larger amounts could be given to patients between 55 and 65 years of age. It was formerly thought that young people tolerated lead better than older persons, but we have observed that a slightly higher average dose was necessary to produce toxic symptoms in patients between the ages mentioned than in younger patients.

Sex of the Patient.—It appears that the male is more tolerant than the female to the toxic effects of lead, as the following figures tend to demonstrate:—

Maximum and Minimum Amount of Pb required to Produce Toxic Symptoms: Average for all Ages.

Maximum.			*Minimum.*		
Males.		Females.	Males.		Females.
0·34 g.	....	0·29 g.	0·1 g.	....	0·04 g.

It must, however, be remembered that the average weight of men is greater than that of women.

Size of Malignant Growth.—It has, too, constantly been observed that there is a definite relation between the sizes of the growth to be treated and the amount of the lead which can be tolerated. A patient with a large sarcoma in the abdomen, for instance, would show no signs of lead poisoning until very considerable quantities had been given; whereas a patient with a small carcinoma of the œsophagus might show symptoms of poisoning when a relatively small amount had been administered. This relation between the size of the tumour and the amount of lead which is tolerated is impossible to demonstrate in figures, but it is a clinical fact which we have repeatedly observed. The importance of this will be discussed in another paper.

From what has been said in the preceding paragraphs it will be noticed that there are many factors concerned in the facility or difficulty with which lead poisoning may be produced in patients under treatment, and the various factors may interact so as to produce a complex arrangement that is impossible to estimate in any statistical manner, and it is this that makes treatment of malignant disease with lead extraordinarily difficult.

In our experience repeated small doses over a long period of time produce a dangerous cumulative effect. On the other hand, a few large doses administered at long intervals, considerably exceeding in total quantity of lead the amount given in small repeated doses, may, after the initial symptoms, leave no bad effect whatsoever.

EXCRETION OF LEAD.

As is well known, lead is but slowly excreted from the body. Our own observations indicate that malignant growths have the power of attracting lead, as a result of which we have found that the metal may become locked up in the tumour to an extent that is infinitely greater than occurs in the normal tissues of the body. We have also made observations on the relative excretory processes of the kidney and bowel. The urine and fæces were collected from two cases to which heavy initial doses of lead, amounting to 0·15 g. lead, had been administered in a single dose. In these cases it was found that the amount of lead excreted by the kidney was very large, and that only a small proportion appeared in the fæces.

TOXIC EFFECTS OF LEAD ON THE BLOOD AND BLOOD-FORMING ORGANS.

Red Cells.—The effects of lead on the red cells may be grouped as follows: (*a*) punctate basophilia; (*b*) polychromasia; (*c*) abnormal forms; (*d*) anisocytosis and poikilocytosis; and (*e*) anæmia.

Punctate Basophilia.—This is one of the earliest signs of lead poisoning. Some writers have stated that this phenomenon occurs in normal blood; we are, however, convinced that this is not so; it has only been found in a single case in our large series of blood examinations before lead has been administered. Undoubtedly, of course, it occurs in other pathological states, especially severe anæmias.

The appearance of the granules in the red cells, which give rise to the name "punctate basophilia," when seen in a blood film stained by Leishman's method, varies. In a well-marked example they are seen as bright blue stipples, numbering from 10 to 20 or even more, inside the red cells. The size of the blue stipple varies greatly; in some cases they are large, when the condition is known as "coarse basophilia"; in these instances the blue bodies are frequently arranged round the periphery of the cell. In other cases they resemble very fine dots scattered uniformly throughout the cell. In those cases in which there is polychromasia it is possible that the appearance is due to the granules having become broken up and diffused throughout the cell.

The actual number of stippled cells found in any film of blood is also subject to great variety. In a severe case of lead poisoning it is possible often to find an average of two stippled cells in each field under the 2 mm. objective; this, however, is rare. More commonly one stippled cell is found in every five or six fields. When the patient shows no other evidence of lead poisoning, it may be possible only to find one or two stippled cells after a prolonged search. The time of appearance of the stippled cells in the blood, after the intravenous administration of lead, depends on two factors: (*a*) the amount of lead given, and (*b*) the susceptibility of the patient from the many points of view already discussed. The smallest total amount of lead which produced stipples in our cases amounted to only 0·02 g. The earliest time at which stipples have been observed was three hours after a single injection amounting to 0·1 g. of lead. Generally, great variations have occurred both in the time of appearance of the stipples, and in the amount of lead necessary to produce them. No doubt susceptibility is a factor of importance in this matter.

The exact significance of stippling has never been determined with absolute precision. By some it is considered to be a degenerative process, by others regenerative. Recent observers incline to the belief that the phenomenon is due to degeneration in the red cells owing to the fact that in the bone-marrow

stippled cells are not found, and also because the phenomenon is associated with other pathological processes than lead poisoning. Moreover, it appears probable that the basophile stipples are of cytoplasmic origin, and are not, in fact, fragments of the nucleus of a normoblast. Indeed, we have frequently observed normoblasts containing a perfectly normal nucleus, in which coarse basophile stipples have been scattered in the cytoplasm around the periphery.

Polychromasia.—This is a very common phenomenon. It consists of a diffuse grey-blue coloration of the red cells stained by Leishman's method. Reference has been made to the suggestion that this is due to diffusion throughout the cell of the basophile stippling. It is possible, also, that it may be connected with changes in the constitution of the hæmoglobin in the red cells in the circumstances under consideration. We have observed this phenomenon frequently during the recovery of the patient from the effects of lead.

Abnormal Forms.—The presence of nucleated red corpuscles is not very uncommon. When present they are invariably associated with considerable anæmia and stippling of the red cells. Sometimes, as already mentioned, the nucleated red cells themselves contain stipples. From this it is obvious that degenerative processes associated with the formation of stipples, whatever they may be, can occur at a very early stage in the life of the red cell.

Anisocytosis and Poikilocytosis.—These phenomena have only been seen in association with more or less profound anæmia.

TABLE I.—*Summary of Patients Showing Changes in Red Blood Cells after the Administration of Pb.*

No. of patients (117 cases): Males (M.), 31; females (F.), 86.		
No. of patients showing—		
1. Stippling of the red corpuscles (76 cases)	M.	24
	F.	52
2. Stippling of the red corpuscles + N.R.C. (24 cases)	M.	6
	F.	18
3. Polychromasia (14 cases)	M.	2
	F.	12
4. Stippling, nucleated reds, poikilocytosis (1 case)	F.	1
5. Stippling, nucleated reds, polychromasia (2 cases)	F.	2
Average amount of lead producing— Stipples	0·14 g.	
Polychromasia	0·157 g.	
Nucleated reds	0·138 g.	
Average time for production of— Stipples	12 days.	
Polychromasia	13·4 days.	

and in six of the most recent cases where nucleated red corpuscles appeared they were observed on the fifth day.

Anæmia.—Anæmia associated with chronic lead poisoning has long been observed, and, indeed, is a peculiar feature in the appearance of workpeople engaged in the lead trades. An eminent Recorder in the North Staffordshire area informed us that time and time again he was able to see in witnesses in his court evidence of the pallor produced by the absorption of lead. We have observed that although a considerable degree of anæmia, as shown by the hæmoglobin-content may be present, it is not invariable to find this associated with a decrease in the red cell count. We have, however, been able to observe all degrees of the condition, from the very mildest to that resembling the severest form of aplastic pernicious anæmia. Reductions of 750,000 red blood corpuscles after the administration intravenously of 0·2 g. of colloidal lead have been noted; but blood cell counts as low as 3,400,000, and in one case even 1,400,000 have been seen.

As already indicated, far more striking than the diminution in the number of red blood corpuscles may be the reduction in the hæmoglobin-content. Table II., which consists of a few cases selected at random, will serve to illustrate these points.

It will be seen from Table II. that lead causes a relatively greater diminution in the hæmoglobin-content of the blood than in the number of red cells, although this is not invariable.

It follows that with such marked blood destruction all the symptoms of serious anæmia may be present—pallor of the skin and mucous membranes, headache, lassitude, and muscular weakness. In several of our patients a blood transfusion has been deemed necessary before treatment could be continued. In one case, however, in spite of repeated transfusions, very little benefit was obtained; the lead seemed to have destroyed the blood-forming power of the bone-marrow.

TABLE II.—*Relation Between the Hb. Content and the R.b.c. and the Amount of Pb Administered.*

Case No.	Hb. percentage before treatment. (R.b.c. in millions.)	No. of inject.	Mass of Pb.	Hb. percentage after treatment. (R.b.c. in millions.)
			(g.)	
44	73%; r.b.c., 3,900.	5	0·18	50%; r.b.c., 3,660.
34	95%; r.b.c., 6,500.	11	0·48	65%; r.b.c., 3,950.
46	88%; r.b.c., 4,800.	5	0·35	82%; r.b.c., 4,625. 17 days later Hb. 70%; r.b.c. 4,050.
48	90%; r.b.c., 4,725.	4	0·24	82%; r.b.c., 3,950.
32	90%; r.b.c., 5,900.	11	0·53	52%; r.b.c., 3,050. 1 more inject., 10 c.cm. B.
			0·55	42%; r.b.c., 2,800. 1 more inject., 15 c.cm. B.
			0·58	36%; r.b.c., 2,340.
47	83%; r.b.c., 5,125.	13	0·43 + 0·05 = 0·48	55%; r.b.c., 4,950.
23	95%; r.b.c., 7,100.	37	0·83	50%; r.b.c., 4,400.
189	84%; r.b.c., 4,750.	2	0·2	59%; r.b.c., 4,000.
185	88%; r.b.c., 5,150.	3	0·3	75%; r.b.c., 3,850.

The rate of recovery from lead anæmia is, of course, a most interesting matter. In those cases, such as the one just described, who had submitted to frequently repeated small doses, recovery from the anæmia is rather a lengthy process. On the other hand, when patients have received several massive doses their recovery seems almost instantaneous.

The appearance of patients who have recovered from malignant disease under treatment, and are seen some months or years later, is that of the most vigorous health, without any abnormality of the blood cells. This point was emphasised by Dr. Adami recently at a review of our cases.

Another phenomenon to be observed with considerable frequency in blood films is the curious distribution of the pigment in the red cells. They assume the appearance of a lifebuoy with the red pigment around the periphery and an apparently clear zone in the centre; this, of course, is a common phenomenon in anæmia, but as we have observed it so repeatedly we think it well to call attention to it.

BONE-MARROW.

We have examined the bone-marrow from animals which have died in the laboratory from lead poisoning. In no case have we seen stippled cells in this tissue; indeed, like other observers, we are at a loss to say in what important particular this organ is affected. A lengthy investigation into the normal structure of this complex tissue has not enabled us to discover any important difference in the bone-marrow of healthy and lead-poisoned animals. That it is involved is undoubted, as the stage of inertia is reached in certain cases, to one of which we have referred, when the marrow seems to have given up the effort of throwing off normoblasts into the blood-stream.

CHANGES IN THE WHITE CELLS.

These may be grouped as follows: (*a*) leucocytosis, (*b*) relative lymphocytosis, (*c*) slight eosinophilia, (*d*) increase in other granular and streaky forms, and (*e*) leucopenia.

Leucocytosis.—Leucocytosis has, of course, been observed in association with malignant processes. Whether this is due to malignant growth is doubtful; it seems likely that it may be the result of the infection

that so often supervenes owing to autolytic processes in malignant neoplasms. Bearing this fact in mind, we have endeavoured carefully to observe whether the administration of lead alters the white cell count. When moderate-sized doses of lead have been given there has not been any very great increase in the number of white cells, 14,000 to 15,000 being the maximum number counted. In one instance, however, in which the patient received 0·2 g. lead in a single dose, leucocytosis was pronounced, the leucocyte count rising to 58,000 within 48 hours of the injection. It would appear that the earlier the counts are made after an injection, the greater likelihood there is of finding some degree of leucocytosis, for the number of white cells appears rapidly to diminish until the normal level is reached. (Table III.)

TABLE III.—*Showing Leucocytosis after Administration of Pb.*
Normal w.c. count: 6500.

Case.	No. of injects.	Mass of Pb.	Leucocyte count.	Time after commencing treatment.
		g.		
178	4	0·425	9,200	—
79	10	0·3	9,500	3 months.
174	1	0·2	52,500	2nd day.
91	4	0·16	14,500	—
105	20	0·57	12,000	—
138	2	0·019	15,000	—
146	3	0·0275	15,000	In 9 days.
	11	0·1825	42,000	—
149	6	0·086	12,000	1 month.
53	22	1·3	10,000	—
23	14	0·39	11,250	4 months.
168	4	0·11	15,000	—
23	3	0·025	13,750	6th day.
45	2	0·06	13,700	3rd day.

Relative Lymphocytosis. — Many observers have described relative lymphocytosis in association with lead poisoning. This, however, is by no means common, and very rarely does the percentage of lymphocytes exceed that of leucocytes. The counts in Table IV. are illustrative of a certain degree of lymphocytosis.

TABLE IV.

No. of w.b.c.	Polymorph. (%).	Lymph. (%).	Large mononuclear cells (%).	Eosinophile (%).	Mast. (%).
3,900	46·0	48·0	1·5	4·5	—
13,750	51·3	31·6	10·6	6·0	0·6
3,500	52·5	27·0	20·5	6·0	—

These, however, are somewhat unusual, and, taking an average of a large number of cases of differential counts, the percentage figures work out as follows: polymorphs, 63·6; lymphocytes, 20·7; large mononuclear cells, 7·4; eosinophiles, 3·7; mast cells, 1·5; and transitionals, 2·6.

It will be seen in lead poisoning that although a relative lymphocytosis may occur, yet it is not constant, and with almost all cases the relative numbers of leucocytes and lymphocytes are approximately normal. The slight increase in the eosinophile cells appears to be fairly common. In some instances this was very marked, and very many beautiful specimens were seen with large pink granules. On one occasion they equalled 8·3 per cent. of all the leucocytes present, and as high a ratio as 6 per cent. has been observed on several occasions. Yet, as is seen from the preceding table, taken on the general average of a large number of differential counts, the eosinophile cells represent only 3·7 per cent. of the total number of leucocytes—a slight but definite increase above the normal.

Increase in other Granular and Streaky Forms.—A number of curiously-streaked forms of white cells may be found. Many of the cells already described in the table were as large as polymorphs, and show a streaky cytoplasm. In size and shape they resemble the large hyaline cells. Occasionally there are found cells which closely resemble the ordinary polymorph, except that the granules, instead of staining pink with eosin, taken on a purple tinge.

Leucopenia.—Leucopenia is rarely seen. There seems a tendency rather that, if there be a change, it is towards leucocytosis. The particulars given in Table V. illustrate the possibility of this condition.

TABLE V.—*Showing Leucopenia.*

Case No.	W.c. count before treatment.	No. of injects.	Mass of Pb.	Leucopenia.	Time.
			g.		
1	6,200	4	0·16	3,900	22 days.
14	8,120	24	0·2	6,250	7 months.
34	9,375	27	1·056	4,217	15 ,,
				5,000	17 ,,
150	10,625	16	0·674	3,500	11 ,,
		17	0·774	6,200	12 ,,

It will, however, be seen from the tables given that there is nothing specific or definite in regard to the change seen in the white cells as there is in the red cells.

THE ALIMENTARY SYSTEM.

The signs and symptoms discussed under this heading are the following: (1) Blue line on the gum edges; (2) nausea and vomiting; (3) intestinal colic; and (4) constipation and diarrhœa.

Blue Line on the Gum Edges.—In our experience this has been an uncommon occurrence; it has only been definitely observed in three cases. The explanation of the infrequency with which this phenomenon—so often considered a classical sign of lead poisoning—is observed is probably due to the method of administration. The blue line is, of course, due to the conversion of lead into lead-sulphide by the H_2S generated by decaying vegetable matter in the mouth. In these circumstances it is easily understood that if lead gained entrance to the system through the mouth, en route either to the lungs or the intestinal canal, the blue line on the gums would readily be produced; and these methods of admission are probably the common ones in industrial lead poisoning. In the three cases in which we have seen the blue line, lead had been administered over a relatively long period. When given in massive doses, as now, it is unlikely that it will be seen. It has always been stated that the blue line is persistent over a long period of time, but in our cases it disappeared in two or three weeks. This further illustrates the difference in the manner of production when the lead is administered intravenously from that of the more superficial staining observable in industrial lead poisoning.

Nausea and Vomiting.—It occasionally happens that a patient complains of intense nausea a few hours after the first or second injection of colloidal lead. It is difficult to believe that in these circumstances the symptom is due to lead alone; it is probable that the foreign proteins in the colloidal solution are responsible for the effect produced. The true nausea and vomiting due to lead generally occur later, after the administration of the metal; the nausea and vomiting may then be very bad, and may last for several days. Moreover, it is more persistent in some of the cases in which it has not been observed after the earlier doses; this indicates that the accumulation in the system of a certain amount of lead may be necessary in some patients before these symptoms are produced. Since we have given massive doses the cumulative effect has been well demonstrated. Before June, 1924, the solution used never contained more than 0·1 g. per cent. of lead; after that date we commenced to use a very strong solution containing 0·5 per cent. of lead. The average mass of lead required to produce vomiting with the weaker solution was 0·37 g., whereas with the stronger solution 0·22 g. was sufficient. This is in keeping with the production of other toxic symptoms; with the heavier doses they appear earlier, but,

fortunately, disappear sooner; with the smaller doses we were inclined to continue blindly until very serious symptoms supervened—symptoms which could not well be relieved with any degree of certainty.

Lead sickness is a very distressing condition both for the patient and the doctor. As a rule, the patient can take no food whatsoever, and some of our patients have lived on water (if they did not reject that) and saline with glucose per rectum for several days. It is important, too, to bear in mind the fact that the patient may have gone home for some days before the vomiting occurs. In one case no symptoms supervened until three weeks after an injection, and the patient became seriously ill, and remained so for ten days. In such circumstances, of course, acidosis supervenes. We have known of no cases in which the patient has not eventually recovered, and, indeed, a few weeks later expressed themselves as feeling better than before. The susceptibility of the patient, to which we have already referred, plays a large part in the onset and severity of these symptoms.

Intestinal Colic.—Until the administration of the heavy doses of colloidal lead, we had never seen a case of lead colic. During the last year, however, it has been noted in a large proportion of all the cases treated; very often it is an accompaniment of the attacks of nausea and vomiting, which we have just discussed, and it usually comes on at the same time. The pains may be extremely severe and last several days; eventually, within a short time, they entirely disappear. It is extremely difficult to relieve the pain in severe attacks of intestinal colic; indeed, morphia and atropin are the only drugs we have found of service.

Constipation and Diarrhœa.—We have seen very few cases of constipation that could definitely be attributed to the effects of lead. So many patients are constipated in ordinary circumstances and rarely complain that the injections have made them more so. It is important, however, that patients under treatment should be closely questioned, and saline aperients should be given if constipation is present. We have not been able to connect this disorder with intestinal colic, just mentioned. Diarrhœa we have not seen, except in one or two cases after a very massive dose of lead, and then it appeared to be due to an anaphylactic shock produced by the proteins present in the solution rather than to the lead itself.

NERVOUS SYSTEM, INCLUDING THE RETINA.

The nervous phenomena produced by lead poisoning may be divided into two groups: (1) psychopathies, and (2) neuropathies.

In the early stages of our work we had three cases in which the patient became mentally deranged, no doubt due to what has been called lead cephalopathy—that is, to changes produced by lead in the brain.

In only one case were the symptoms serious. The patient was a male with an extensive carcinoma of the œsophagus; he became unmanageable, and apparently had delusions that he was being starved.

In another case, a man with extensive carcinoma of the floor of mouth, the patient became strange in his manner and taciturn; there was no violent outbreak, and the patient was sent home in a slightly improved condition so far as his mentality was concerned.

In the third, the patient, when at home in an interval between the administration of injections, committed suicide, but it was hardly fair to attribute this to the administration of lead, for he was a young man who was naturally in a state of considerable mental agitation, because he knew that he had cancer of the bladder.

With regard to neuropathies, such as wrist-drop, we have seen none, and this has been a source of considerable surprise, for we know that involvement of certain peripheral nerves has been regarded as almost inevitable in lead poisoning.

The Retina.

Four patients have complained of eye symptoms. In two instances they suffered from temporary loss of vision, the condition lasting only a few hours, complete recovery supervening.

In the other two cases, however, there was considerable œdema of the retina, and in one there was optic atrophy, the patient becoming almost completely blind. It was important to note that the œdema of the retina in each case was associated with generalised œdema of the body and a considerable degree of albuminuria. It is probable that the lesions in the kidney were responsible for the retinal changes.

These symptoms only occurred in the earliest stages of our work, but we feel that they should be emphasised as a serious warning of the dangers associated with this treatment.

THE KIDNEY.

Sometimes the earliest and often the most obvious toxic action of lead is on the kidney. The extent and duration of the damage seem to depend both on the amount of the dose given at one particular time and also on the total quantity of lead administered, even when given in small doses.

TABLE VI.

Case No.	Condition.	Date.	Quantity of Pb to date.	Blood urea.
			g.	mg. %.
185	Retroperitoneal sarcoma.	14/4/25	Nil.	12
		26/5/25	0·3	29
		30/5/25	0·4	32
		26/8/25	0·55	31
186	Carc. of tarsus and tibia.	16/4/25	Nil.	24
		24/6/25	0·5	31
157	Sarcoma of parotid.	26/5/25	0·6	28
150	Carc. mammæ et peritonei.	7/5/25	0·774	22
191	Carc. mammæ.	4/8/25	0·275	29
169	,,	8/5/25	0·407	26
179	Carc. mammæ et maxillæ.	9/1/25	Nil.	19
		16/1/25	0·05	17
177	Carc. of pancreas.	10/11/24	Nil.	29
		1/7/25	0·5	34
189	Carc. mammæ.	20/5/25	Nil.	27
		26/6/25	0·2	31
178	?Ovarian sarcoma.	15/12/24	Nil.	21
		26/1/25	0·225	20
		1/5/25	0·525	13
		6/5/25	0·525	14
		5/6/25	0·625	35
20C.	Renal sarcoma.	6/8/24	0·03	31
		10/9/24	0·2	40
		18/9/24	0·24	45
		28/9/24	0·26	50
		7/10/24	0·28	48
21C.	Carc. mammæ.	12/9/24	0·05	38
		17/10/24	0·145	31
22C.	Carc. œsophagei.	16/9/24	Nil.	19
		20/1/25	0·37	27
23C.	Carc. rectum.	22/8/24	Nil.	43
		10/9/24	0·08	38
		22/9/24	0·155	35
		30/9/24	0·195	40
24C.	Carc. ventriculi.	17/10/24	Nil.	22
		14/11/24	0·11	25
25C.	Epithelioma of jaw.	10/9/24	0·05	35
		28/9/24	0·15	45
		6/10/24	0·20	42
26C.	Carc. œsophagei.	21/1/25	Nil.	19
		27/2/25	0·18	23
27C.	Sarcoma of femur.	17/12/24	Nil.	23
		19/12/24	0·2	44
		23/12/24	(massive	167
		31/12/24	18/12/24)	85
28C.	Epithelioma of face.	14/12/24	Nil.	43
		19/12/24	0·2 (massive)	55
		11/1/25	0·29	31
174	Carc. post cricoid.	4/11/24	Nil.	32*
		6/11/24	0·2 (massive)	66*

* Non-protein nitrogen.

We have attempted to study the effect of lead therapy on renal function from five main points of view: (1) clinical manifestations; (2) changes in the blood-urea; (3) changes in the urea-concentrating power of the kidney; (4) changes in the urine; and (5) pathological changes in the kidney.

Clinical Manifestations.—Usually, after small doses of lead, clinical manifestations are not apparent. Occasionally, however, diminution in the secretion of urine and œdema may occur together with changes in the urine. The appearance of symptoms, or of other evidence of renal impairment, has invariably led to the cessation of treatment, at any rate for the time being, with the result that further signs of renal failure have not occurred. Pre-existing renal disease has been regarded either as a contra-indication to treatment or as an indication for small dosage, according to the severity of the disease. Massive doses, however, have led to the appearance of other symptoms which appear to be due to renal damage. These are pain in the back, hæmaturia, drowsiness, headache, and vomiting. Headache and vomiting, however, may occur without other evidence of renal failure.

Changes in the Blood-urea.—Routine estimations have been made of the urea content and in a few cases of the non-protein nitrogen of the blood. The results obtained seem to indicate that small doses of lead are without effect on the value of the blood-urea. Massive doses of lead almost invariably cause a rise in blood-urea, often a marked rise. There is, however, always a subsequent tendency to fall after a few days. With the rise in blood-urea there is a simultaneous fall in the excretion of total urea. (Table VI.)

Changes in the Urea-concentrating Power of the Kidney.—The urea-concentration test becomes inapplicable of necessity in cases in which there is marked suppression of urine. It is, therefore, of very little value in determining the degree of renal impairment following a massive dose. It was used, however, in one such case after the immediate effects of the lead had passed away. No change in the concentrating power occurred at this period. In respect of smaller doses of lead there were also no definite changes. (Table VII.)

TABLE VII.

Case No.	Condition.	Date.	Quantity of Pb to date.	Urea conc. test.		
			g.		c.cm.	%
25c.	Epithelioma of jaw.	11/9/24	0·05	(1)	28	2·9
				(2)	56	3·4
				(3)	48	4·0
		17/9/24	0·10	(1)	72	2·4
				(2)	168	1·8
				(3)	168	2·2
		23/9/24	0·13	(1)	112	1·9
				(2)	96	2·2
				(3)	96	2·2
29c.	Carcinoma œsophagei.	25/8/24	0·05	(1)	84	2·3
				(2)	112	2·5
				(3)	84	2·4
		4/9/24	0·09	(1)	114	2·1
				(2)	96	2·7
				(3)	84	3·0
23c.	Carcinoma of rectum.	10/9/24	0·08	(1)	168	2·2
				(2)	56	2·3
				(3)	140	2·5
		21/9/24	0·155	(1)	98	2·4
				(2)	120	2·2
				(3)	100	2·2
20c.	Renal sarcoma.	7/8/24	0·03	(1)	300	0·8
				(2)	140	2·2
				(3)	110	2·8
		10/9/24	0·20	(1)	356	1·5
				(2)	168	2·2
				(3)	140	2·3
		22/9/24	0·26	(1)	208	2·1
				(2)	130	2·4
				(3)	130	2·6
28c.*	Epithelioma of face.	13/11/24	Nil.	(1)	224	1·9
				(2)	112	2·2
				(3)	112	2·6
		24/11/24	0·2 (massive 17/11/24)	(1)	112	3·2
				(2)	84	3·4
				(3)	84	4·0

* See Figs. 1, 2, 3.

Changes in the Urine.—Diminution in secretion often precedes the appearance of albumin in the urine following lead therapy, and is a valuable indication of early renal damage. It occurs occasionally during the administration of small doses and almost invariably after massive doses.

The quantity of lead administered in several small doses at intervals necessary to produce albuminuria varied from 0·06 g. to 0·83 g. Massive doses (0·1 g.) invariably produce it at once. The albuminuria usually disappears if no further injections are given. This condition has occurred in 43 (23 per cent.) of the cases treated. The total amount of lead necessary to produce it was less than 0·1 g. in six cases, between 0·1 g. and 0·2 g. in 23 cases, between 0·2 g. and 0·3 g. in 6 cases, and over 0·3 g. in 6 cases.

Casts appeared in all cases treated by massive doses but eventually disappeared in most. On one occasion granular and hyaline casts did not appear until 17 days after the injection of 0·15 g., to disappear again subsequently. It was unusual to find them after smaller doses.

The quantity of chlorides in the urine is unaltered, as a rule, after small doses of lead, but these salts may be completely absent for a time after large doses.

Pathological Changes in the Kidney.—The kidneys of two cases which had received massive doses of lead showed little macroscopic changes at autopsy, apart from congestion. Microscopically, very definite changes were found affecting mainly the secreting tubules.

CASE 28c (Epithelioma of face).—P.M.:—Kidneys: Acute congestion. Considerable amount of advanced cloudy swelling, three-quarters of the epithelium being affected in the tubules. A few isolated areas of chronic interstitial nephritis. No definite endarteritis. (Total amount of lead = 0·35 g., including a massive dose, 0·1 g.).

CASE 29c (see Fig. 4) (Sarcoma of femur).—P.M.:—Kidneys: Moderate amount of cloudy swelling and considerable dilatation of secreting tubules producing an appearance similar to that met with in subacute diffuse nephritis. No casts or other evidence of acute nephritis. Arteries apparently normal. (Total amount of lead = 0·34 g., including a massive dose, 0·1 g.)

The kidneys of three dogs with spontaneous malignant tumours that had received varying doses of lead were also investigated.

Dog, "Major"; mongrel. Kidneys: Cloudy swelling of the secreting tubules. No arterial changes. (Total amount of lead = 0·0612 g.)

Dog, collie (male). Kidneys: Acute congestion and tubular necrosis. (Total amount of lead = 0·2 g.)

Dog, "Pat"; Irish terrier (male). Kidneys: Tubular necrosis. Acute congestion. Thrombi in the glomeruli. (Total amount of lead = 0·0942 g.)

It is interesting to compare these findings with the appearances seen in a case of industrial lead poisoning. Tubular necrosis was found together with evidence of long-standing chronic interstitial nephritis without much glomerular change. There was a definite deposit of pigment.

THE LIVER.

It is possible that some of the symptoms following the intravenous injection of lead—viz., headache, rigors, nausea, and vomiting—are due to impairment of hepatic function. In all cases of general poisoning the liver is the first line of defence, and it absorbs much of the toxic agent from the blood-stream. This has been shown to be the case after the administration of the arsenobenzol derivatives.

The effect of lead on the liver has been studied from two main points of view: (1) The effect on the bile-producing function; and (2) the pathological changes produced in the liver.

Effect on the Bile-producing Function.—All degrees of jaundice have been encountered varying from a slight icteric tinge of the sclerotics after the smaller doses to a deep tint of the skin with a large amount of bile in the urine, which is often seen after massive doses. It is probable that the lesser degrees of jaundice are purely hæmolytic in origin. This is supported by the fact that in these cases, while no bile is to be found in the urine, there is often excess of urobilin, and the Van den Bergh reaction of the blood serum is indirectly positive only.

An explanation of these phenomena would seem to lie in the fact that lead influences the bile-producing mechanism just like phosphorus, arseniureted hydrogen, and toluylene diamine, partly through blood destruction and partly through its direct effect on the bile-secreting cells of the liver. In the slight cases the

FIG. 1.

CASE 28C.—Section of liver showing congestion, slight fatty infiltration, hæmosiderin. × 300.

bile-secreting cells are probably unaffected, and the jaundice is due to the excessive production of bile-pigments from the products of hæmolysis by the Kupffer cells. These pigments are produced in too large a quantity to be taken up entirely and secreted by the liver cells, with the result that a quantity continues to circulate in the blood, and slight jaundice follows—a similar state to that which occurs in pernicious anæmia and acholuric jaundice.

In other cases, especially when massive doses have been administered, it appears that, in addition to

FIG. 3.

The same as Fig. 2. × 300.

damage and disordered function of the polygonal cells, there is also obstruction in the smaller bile ducts due to cholangitis. The jaundice is deep; bile appears in the urine, and an immediate direct Van der Bergh reaction is the rule.

Pathological Changes Produced in the Liver.—The pathological changes produced by lead were studied in the material obtained at autopsies on two human subjects and two dogs. The outstanding changes appeared to be: fatty infiltration, congestion, and the deposit of hæmosiderin.

FIG. 2.

CASE 28C.—Section of kidney showing advanced cloudy swelling of tubules. × 75.

CASE 28C (Epithelioma of face).—Liver: Congestion and small deposit of hæmosiderin. (Total lead = 0·35 g.)

CASE 29C (Sarcoma of femur).—Liver: Fatty infiltration. Deposit of hæmosiderin in the liver cells and Kupfer cells. (Total lead = 0·34 g.)

Dog: "Major." Liver: Fatty infiltration. (Total lead = 0·0612 g.)

Dog, collie. Liver: Marked congestion. Fatty infiltration. (Total lead = 0·2 g.)

FIG. 4.

CASE 29C.—Section of liver showing hæmosiderin. × 300.

Similar changes were found in a case of industrial lead poisoning, where the main features were: fatty infiltration and the deposit of pigment.

It is only right to point out that with increased experience we now find it possible to avoid all the

more serious toxic effects of the administration of lead, although it is only to be expected that those of a less serious nature, such as nausea and colic, will occasionally be seen. The foregoing account of the poisonous effects of lead may, indeed, be taken as demonstrating the difficulties through which we have had to fight our way to reach comparative safety. This we believe we have accomplished. At the same time it must be emphasised that only long experience, careful judgment, and complete biochemical investigations have enabled us to secure our patients from harm. Such immunity as we have established in this respect can only be attained by those using this form of treatment if they obtain first-hand knowledge of the method and carefully follow the suggestions made in our next communication on the treatment of patients.

GENERAL SUMMARY AND CONCLUSIONS.

Blood Changes.

1. Lead causes changes in the red cells. There is punctate basophilia, which may appear within a few hours of initial dose. Anæmia and its accompaniments, polychromasia, anisocytosis, and poikilocytosis occur later. This anæmia may be only temporary, or, if bone-marrow be involved, may persist.

2. Leucocytosis has frequently been observed, especially when the blood has been examined shortly after an intravenous administration of lead. Leucopenia occurs occasionally. Neither of these phenomena appears to be constant.

3. A slight relative lymphocytosis may occur, but this is not generally marked.

4. There is a definite increase in the number of granular forms of leucocytes.

5. Anæmia is a consequence of the long-continued administration of lead, and it is accompanied by the usual symptoms of that condition—namely, headache, lassitude, and palpitation. In women there may be amenorrhœa. This last-named is not constant, and depends on many circumstances.

Alimentary System.

1. Blue line at the gum edge is rarely seen when lead is administered intravenously.

2. Nausea and vomiting appear to be dependent on the amount of lead administered, but occur after a smaller total quantity when given in massive doses, rather than after the long-continued administration of small doses.

3. Intestinal colic occurs with considerable frequency after the administration of massive doses; it is not seen after the long-continued administration of a smaller quantity of lead.

4. Constipation and diarrhœa have not been observed as definite phenomena supervening under the treatment adopted.

Nervous System, including the Retina.

1. Psychopathies may occur after the intravenous administration of lead; they are, however, rare.

2. Neuropathies do not occur when lead is administered in the manner mentioned.

3. The retina may be affected; in these circumstances it is probable that it is a concomitant of renal involvement.

The Kidney.

1. The toxic effect of lead on the kidney as the result of intravenous therapy is sufficiently frequent and of such magnitude as to require the greatest caution in the administration of this drug, especially in large doses.

2. The functional impairment caused by many small doses is smaller in degree but more permanent than that caused by occasional large doses.

3. The earliest indications of renal failure appear to be: (*a*) Diminution in the quantity of urine secreted; (*b*) the presence of albuminuria; and (*c*) the presence of œdema.

4. A rise in blood-urea does not occur, as a rule, until the damage is sufficiently great to be detected clinically. Changes sufficiently great to be of value have not been observed in the urea-concentrating power of the kidney.

5. As in nephropathies due to other causes, it is difficult to correlate functional impairment with pathological change. A case which showed advanced cloudy swelling in three-quarters of the tubules has good renal efficiency as determined by the usual tests.

The Liver.

Pathological changes are not so marked in the liver as in the kidney, and the main impairment of function seems to be connected with the bile-producing mechanism.

General.

The administration of lead is a form of treatment that should never be attempted by those who have not complete laboratory facilities at their disposal, and who have not studied for some time the actual treatment of patients.

We wish to acknowledge with gratitude the large amount of work done by Mr. H. F. Woolfenden and Mr. Patterson in our earlier investigations of the effects of lead.

GASTRO-JEJUNAL ULCER.*

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ALTHOUGH gastro-enterostomy has been performed for the treatment of gastric ulcers for nearly 45 years, there is still some doubt as to its value. This doubt is largely due to the fear of the later onset of gastro-jejunal ulcer. Some surgeons are advocating the use of more severe operations to prevent what they regard as a common complication; others believe that the frequency of these marginal ulcers has been much exaggerated and their danger will be outweighed by the increased risk of the larger operation. The time is therefore opportune for a careful review of the known facts which are based upon the large number of figures now available.

Frequency of Gastro-jejunal Ulcer.

The real frequency of the condition must be accurately determined, for it is possible that it is believed to be common owing to the fact that only the failures present themselves for further observation and treatment, while the successes are overlooked. Such an investigation is not, however, without difficulty, for there is no question but that the incidence is increased by want of technical skill in performing the operation. To-day operations of this magnitude are being widely performed by those who have only had a small amount of experience in war surgery, and who, when confronted with an upper abdominal lesion, perform a gastro-enterostomy incorrectly, or, what is of greater importance, perform it when it is not indicated. A high percentage of bad results under such conditions is to be expected, and unfortunately they discredit the operation even when it is correctly performed. On the other hand, unless all the cases are seen in an adequate follow-up department, many examples of this complication may be overlooked and the incidence placed too low. In Paterson's[12] original paper stress was laid upon the difficulty of obtaining true figures, but he found three cases in 348 patients, that is, a little under 1 per cent. Judd[8] reported 54 in 3324 gastro-enterostomies, that is, 1·04 per cent. Lewisohn,[9] on the other hand, has reported an astonishing series of 68 cases, 23 of which developed gastro-jejunal ulcers, a percentage of 34. Generally, however, there is a remarkable unanimity among surgeons of wide experience in placing the frequency between 1 and 2 per cent. My own experience is as follows:—

There have come under my care 20 cases of gastro-jejunal ulcer, 11 of them being cases upon whom I had

*A paper read before the American Inter-State Congress in London.

personally operated. It is almost certain that these 11 are the total number, for all cases have been carefully watched in a most satisfactory follow-up department, and I do not think that any with this complication have escaped observation. These 11 occurred in a total of 783 gastric and duodenal ulcers which had been subjected to operation, giving a percentage of 1·4 (Table I.). Of these cases, however, a gastro-enterostomy was alone performed in 631 cases, so that the danger of this ulcer formation after simple gastro-enterostomy may from this group be estimated at 1·7 per cent. My figures, however, show that the lesion is only common after duodenal and pyloric ulcers; in fact, of the 11 cases only one occurred after a lesser curve ulcer. If, therefore, we consider the pyloric and duodenal ulcers alone, that is the group that is most favourably placed for the onset of this complication, we find there are ten anastomotic ulcers in 417 cases, a percentage of 2·4, which may be regarded as the highest incidence. It must, however, be remembered that for so crippling and dangerous a disease as an ulcer at or about the pylorus a gastro-enterostomy gives us, as I have elsewhere shown,[17] 90 per cent. of complete cures, results which are incomparably better than after any form of medical treatment. The operation must not, therefore, be condemned because so small a percentage is left with this dangerous complication, and before substituting for it any other form of operative procedure, we must be confident that this procedure does prevent the incidence of this disease, and has not a higher mortality than that of simple gastro-enterostomy, which is well under 1 per cent.

TABLE I.—*Frequency of Gastro-jejunal Ulcer.*

	Total.	Gastro-jejunal ulcers.	Percentage.
All ulcers	783	11	1·4
Gastro-enterostomy alone	631	11	1·7
Pyloric and duodenal alone	417	10	2·4

Ætiology and Pathology in Relation to Prevention.

There are, however, certain points in the ætiology and pathology of this condition which will indicate how its onset can be prevented. As a general rule the jejunum is remarkably free from ulceration, and is generally only affected after an artificial anastomosis has been made between it and the stomach. Von Roozer[16] in reporting three cases first suggested the possibility of primary ulceration in this position, and Richardson, in reporting two of his own cases, was able to collect ten others from the literature. I[17] have reported another similar case occurring in a woman. After gastro-enterostomy the ulceration always occurs in proximity to the junction, and although gastro-jejunal and jejunal ulcers have been described, I have never yet seen a true example of the latter. In every case which I have had the opportunity of observing there has been evidence that the ulcer has started directly at the junction, for even when the ulcer was relatively remote there was a scar extending to the anastomotic line.

The ulcers are nearly always found after an operation for a pyloric or duodenal ulcer. This relationship has been constantly found by all observers, and it will be noted in my own series of 20 that there was only one unusual case in which the ulcer followed a lesion of the lesser curve. It is also almost wholly limited to males, possibly because they are so much more liable to ulcers at the pylorus and in the first part of the duodenum. In my own series of 417 pyloric and duodenal ulcers, 344 occurred in males, and of the 20 gastro-jejunal ulcers only one was a female (Table II.), and in her case there were exceptional conditions. It is said never to follow an operation for carcinoma of the stomach, although I know of one such in the literature which was reported by Lennander.

TABLE II.—*Distribution of Gastro-jejunal Ulcers.*

Ulcers.	Total.	Males.	Females.	Gastro-jejunal ulcers.
Lesser curve ..	366	228	138	1
Duodenal and pyloric	417	344	73	19
Gastro-jejunal ..	20	19	1	—

The ulcers, as seen shortly after the gastro-enterostomy, may be acute, shallow and irregular in outline, and usually involve one-third or so of the circumference of the new opening. The floor may be covered with sloughing material, and may be the site of a considerable amount of hæmorrhage. If seen later they have all the characters of a chronic peptic ulcer and deeply penetrate the walls at the junction. If they become adherent to the colon the penetration may give rise to a gastro-jejunal colic fistula; if non-adherent, perforation leads to a diffuse peritonitis. A few may penetrate anteriorly, and becoming adherent to the abdominal wall lead to a local abscess. It has been thought that the ulceration owes its inception to the trauma of clamps applied to the jejunum during the operation. This is, however, improbable, since the ulcer nearly always commences, not in the jejunum, but at the line of suture, and the complication seems to be as common whether the anastomosis be performed with or without the use of clamps. The experiments of Gronnerund[3] showed that in dogs the use of clamps made no difference to the incidence of gastro-jejunal ulceration.

Occasionally acute ulceration at the junction is found when the patient has suffered from some acute infective condition immediately following the operation, and hence it is probable that such an infection may be a predisposing factor. It cannot, however, be the only one, nor indeed the most important one, for in many cases the patient has made an uninterrupted recovery from the gastro-enterostomy.

Technical Errors in the Primary Operation.

Technical errors in the performance of the primary operation are unquestionably an important factor; the ulcers, for instance, are found much more commonly after the use of Murphy's button, as is, indeed, to be expected, for this device has to separate by a process of sloughing at the edges of the anastomosis which is likely to progress to chronic ulceration. In the same way the use of silk sutures appears to be a definite factor, for a large number of such ulcers have been reported where a portion of silk was found hanging from the base of the ulcer. In my own 20 cases a portion of such suture was found in nine, so that at one time I was strongly of the opinion that this was the factor of importance. The persistence of the ulcers after the sole use of catgut sutures shows that this is not the only cause. Catgut should alone be used, as it will reduce the incidence of this complication, but it will not entirely abolish it. Another step in the technique around which much discussion has arisen is that of occlusion of the pylorus. Martin[10] points out that the pancreatic secretion is normally activated by the passage of acid through the pylorus. The contact of this acid with the duodenal mucosa produces secretin which is carried by the blood-stream to the pancreas where it stimulates the secretion of the pancreatic juice. Galpern[2] has laid stress upon the importance of this in surgery, and quotes an experiment of Popielski in support of it; a dog's stomach was divided into pyloric and cardiac halves; the introduction of acid into the cardiac end produced no flow of pancreatic secretion, but when inserted into the pyloric end the secretion was profuse. He believes that this experiment is reproduced when the pylorus is occluded. Holzweissig[6] quotes a case supporting this view. The bile and pancreatic ducts were occluded by gallstones and caused the death of the patient. At post mortem acute ulcers were present in the first 10 cm. of the jejunum, and he believes that this was due to the fact that the acid was not neutralised in

the pancreatic secretion. It is interesting to note in this respect that in my one case of gastro-jejunal ulcer occurring in a woman there was also chronic pancreatitis with obstructive jaundice, and it is possible that the absence of a pancreatic secretion was a contributory factor. Von Haberer[5] believes that occlusion of the pylorus has a very definite bearing, for he states that in his series there were 275 cases of simple gastro-enterostomy with three cases of jejunal ulcer, and 71 cases of pyloric occlusion with 12 jejunal ulcers. These views are in entire opposition to the findings of Paterson,[12] who has shown that after gastro-enterostomy there is a diminution in the total chlorides as well as in the free HCl, a change which he regards as being due to the fact that the hormone regulating the formation of HCl is formed in the pyloric portion and is not utilised if the food does not enter this portion of the stomach. Whether a permanent and complete occlusion of the pylorus has any effect on increasing the incidence of this lesion I have no evidence in my own experience to show, but my figures make it quite definite that embedding a duodenal ulcer with silk, which gives rise to a temporary occlusion, has no such effect, for not only have I not had a larger incidence of this complication, but I also carry out a similar temporary occlusion after excision of all ulcers of the lesser curve, and a gastro-jejunal ulcer here is of extreme rarity. That gross errors of technique will increase the incidence of this condition is therefore certain, but that alterations in the minor details have any bearing is improbable, for the majority of surgeons have an incidence of 2 per cent., and it is unlikely that they would all commit errors with the same frequency.

Gastro-jejunal Ulcers and the Prior Operation.

The important question, however, is whether these ulcers can occur after operations other than gastro-enterostomy. The two alternative steps which have been most frequently advocated are gastro-duodenostomy and partial gastrectomy.

Naturally enough no true gastro-jejunal ulcer can occur after a gastro-jejunostomy, but any recurrence of the ulceration at or about the site of the enlarged pyloric opening would be of a similar nature, and would have to be considered in weighing the merits of one operation against the other. Such recurrences are indeed not uncommon, and Turner[15] in his analysis of 43 cases of pyloroplasty found in four cases a recurrence with inflammatory masses near the pylorus, giving a recurrence rate of over 8 per cent., which is considerably greater than the incidence of gastro-jejunal ulcer.

It is generally tacitly assumed that a partial gastrectomy will not be followed by any gastro-jejunal ulcer, and it is on these grounds that this more extensive operation has of late been so frequently advocated as a routine line of treatment for pyloric and duodenal ulcers, and this in spite of the fact that even in the hands of skilled surgeons this operation may be, as Pannett,[11] who advocates its use, points out, a very prolonged and tedious measure which is associated with many difficulties. It is certainly the experience of the majority of surgeons that such ulceration is much less common after partial gastrectomy than after a simple gastro-enterostomy, and Sherren,[14] in 1924, states that up to that period he had never had a marginal ulcer after partial gastrectomy, and the argument has even been put forward that such ulceration is almost impossible because removal of the pyloric antrum abolishes the mechanism of the secretion of acid in the fundus glands. There have occurred in my practice two cases following partial gastrectomy by other surgeons, and others have been reported by Beer[1] and H. Haberer.[4] Von Haberer[5] has even abandoned the Billroth II. and Polya operations and returned to the Billroth I. method, as gastro-jejunal ulceration was in his experience so common after the former operations. Wright,[18] after reporting two cases of a similar nature, gives what is probably the correct explanation of the popularly accepted belief that these ulcers are rare after this operation. He states that up to the present time partial gastrectomy has usually been performed for carcinoma of the stomach, and it is only of recent years that it has been carried out for peptic ulceration, and that marginal ulceration has begun to follow its use. There is thus no doubt that this serious complication is not entirely eliminated by the substitution of the more dangerous operation of partial gastrectomy. Dr. Mayo has pointed out that the removal of so large a portion of the stomach for a small ulcer, perhaps of less than 1 cm. in diameter, in order to lessen the frequency of this rare complication, is too extensive and too dangerous a procedure. This has always been my own view, and I have been very loth to remove perhaps three-quarters of the healthy stomach for a small innocent ulcer. It is true that surgeons of wide experience are agreed that the end-results of a partial gastrectomy are extremely satisfactory, and in the 188 cases in which I have performed this operation for large ulcers and carcinoma I have never met with any severe disability. Nevertheless, Hurst[7] has laid special stress upon the late complications following gastrectomy, and has even claimed that later in life it may be followed by pernicious anæmia. He states that he knows of five such cases where this complication resulted. These claims cannot yet be considered as proved, but they strengthen the belief that so large a removal of a healthy viscus will be found in the future not to be entirely free from danger. Too much stress must not be placed upon the published statistics, for these are generally the results of surgeons of wide experience, and it is highly improbable that surgeons less skilled in abdominal surgery will be able to obtain a mortality even as low as 10 per cent., a mortality which is greater than the combined mortality of gastro-enterostomy and the incidence of gastro-jejunal ulcer after such an operation. To my mind, therefore, there can be no justification for the general substitution of partial gastrectomy for gastro-enterostomy in the treatment of pyloric and duodenal ulcers. I believe that an entirely exaggerated view has been taken of the importance and incidence of marginal ulceration after gastro-enterostomy. This complication is a very serious danger, but it only occurs in a small percentage of cases, and its incidence will not be entirely prevented by the use of an operation which carries a much higher mortality.

Acid of the Gastric Juice in Relation to Ulceration.

It is now clearly recognised that there is a close relationship between the amount of acid in the gastric juice and the incidence of gastric and duodenal ulceration. The work of many investigators, and especially that of Hurst,[7] has established the fact that with pyloric and duodenal ulcers the acidity is high, and it is after operation for these lesions that gastro-jejunal ulceration most commonly occurs. With lesser curve ulcers the acidity is lower and marginal ulceration is rare. With carcinoma, free acid is usually absent, and marginal ulceration is practically unknown. The test meals of my own cases make these facts clear. With carcinoma of the stomach there was nearly always a complete absence of free acid, and with the lesser curve ulcers it was lower than with the pyloric and duodenal ulcers (Table III.). Of the 20 cases of gastro-jejunal ulcer I was able to obtain records of the test meals previous to the first operation in my own 11 cases and in two others. In these 13, who were all males, the acidity was much above the average (Table IV.). As this series was small Mr. Cairns investigated a complete series from the London Hospital comprising 50 cases. Excluding my own cases as above, and those in which the primary operation was performed elsewhere, there were left 19 cases, the average acidity of which is shown in Table V., the figures of which are nearly identical with my own.

In the one case of lesser curve ulcer in which a marginal ulcer followed operation, the test meal showed before the primary operation free HCl 0·23, total acidity 80, and before the marginal ulcer 0·10, 40.

It seemed possible that a variation in the acidity between the different sexes might also account for the tendency of this complication to occur almost entirely in males. I therefore investigated the figures of my series, and it is clear from an inspection of Table VI. that both with the lesser curve and the pyloric and duodenal ulcers the average acidity was considerably higher in the males than in the females.

TABLE III.—*Acidity with Different Types of Ulcer.*

Ulcers.	Cases examined.	Average total acid.	Average free HCl.
Lesser curve ..	192	58	0·118
Duodenal and pyloric	257	62·5	0·160

TABLE IV.—*Acidity with Gastro-Jejunal Ulcer.*

Gastro-jejunal ..	13	71	0·15

TABLE V.—*Acidity with Gastro-Jejunal Ulcers* (Mr. Cairns).

Gastro-jejunal ..	19 all males.	68	0·18

TABLE VI.—*Acidity in the Two Sexes.*

Lesser curve—			
Males	135	61	0·123
Females	57	51	0·108
Pyloric and duodenal—			
Males	213	63·5	0·165
Females	44	57·6	0·136

Up to a short while ago it was usually accepted that the effect of gastro-enterostomy for a pyloric or duodenal ulcer was in the greater number of cases to enormously decrease or entirely abolish the amount of free acid which occurred in the test meal. More recent observations have tended to throw doubt on these conclusions. Therefore Mr. Cairns collected and examined for me a considerable series of more recent cases at the London Hospital, where observations on the acidity had been carried out both before and after gastro-enterostomy. The cases occurring in the years 1921–24 were taken and included 51 lesser curve ulcers and 115 pyloric and duodenal ulcers. Of these, nine of the lesser curve and two of the pyloric ulcers had no free acid previous to the operation and are therefore excluded. The changes occurring in the remainder are seen (Table VII.). It will be noticed that whereas in nearly three-quarters of the gastric ulcers the free acid is abolished after operation, this change occurs in rather less than half of the duodenal ulcers. It is very probable that this difference is due to the tendency to place the stoma nearer the pylorus with the pyloric and duodenal ulcers than with those on the lesser curve, and thus to bring about a less efficient neutralisation. In my group of 13 gastro-jejunal ulcers in which test meals had been taken before and after the gastro-enterostomy, the effects were even less marked. The average acidity as contrasted with Table IV. had fallen (Table VIII.), but the numbers to be benefited were below the average (Table IX.). It is possible that the failure of the acid to fall in these gastro-jejunal ulcer cases may be due to an anatomical variation, the acid-producing cells in a certain number of duodenal ulcer cases (about 2 per cent.) being more widely distributed over the gastric surface, and thus being less affected by the gastro-enterostomy, but whatever may be the cause there is no doubt that the ulceration is dependent upon the higher acidity which occurs in the pyloric and duodenal ulcers in males, and which tends to persist after gastro-enterostomy for the latter group of ulcers.

TABLE VII.—*Changes in Acidity after Gastro-Enterostomy.*

—	Total.	Acid increased.	No change.	Acid lowered 50 % or more.	Free acid abolished.
Gastric ..	42	1	3	9	29
Duodenal	113	2	7	53	51

TABLE VIII.—*Acidity after P.G.E. with Gastro-Jejunal Ulcers.*

Ulcers.	Cases.	Average total acid.	Average free HCl.
Gastro-jejunal ..	13	44	0·12

TABLE IX.—*Changes in Acidity in Gastro-Jejunal Ulcers.*

Ulcers.	Total.	Acid increased.	No change.	Acid lowered 50 % or more.	Free acid abolished.
Gastro-jejunal	13	3	2	5	3

Course of Events after Prior Operation.

It is usually accepted that the majority of cases of gastro-jejunal ulcer do not seek treatment until a considerable period has elapsed after the gastro-enterostomy, and in the ordinary course of events it will generally be found that a patient returns to hospital or to his surgeon complaining of disability some three or four years after the operation. In many published cases, indeed, the interval has been much longer than this, and has extended to 10 or 15 years, so that this free interval is often quoted as being characteristic of the disease. One thing has, however, very clearly emerged from my periodical examination of these cases in a follow-up department, and that is that they never make the same complete and absolute recovery after the gastro-enterostomy which is so characteristic of the greater majority of duodenal and pyloric ulcers. They will often state that they are very much better and have been enormously improved, but if they are cross-examined it will be found that they are unable to take full diet, or that they have a little feeling of discomfort coming on late after food which necessitates their taking a dose of bismuth and alkali through a prolonged period after the operation. It will be noted, too, that although these symptoms are so slight there is a certain periodicity about them. They may continue for a month or two after the operation and then be considerably relieved for several weeks, only to return agair.. This change is very distinct from the usual patient who states that he is perfectly well, is able to eat anything, and has never been so well in his life. As they are watched from month to month it will be noticed that they develop a more definite periodicity, their symptoms become more marked, and especially does the pain become more severe. By keeping a careful record in this way it will often be noticed that when their symptoms have been established they will state that they have been quite well after the operation for a prolonged period, having in the meantime entirely forgotten the minor symptoms. By such a method of careful following it is possible to get evidence of these ulcers in their earlier stage, and I think it is the use of such a department which explains the fact that I have never yet seen a perforation of one of these ulcers either into the general peritoneal cavity or into the colon; complications, which from the published statistics, appear to be relatively common. When the disease is well established the severe symptoms show a periodicity which is nearly as characteristic as that of a duodenal ulcer. They appear in attacks which will last from three to four weeks, and may then be followed by several months of complete relief. If the base of the ulcer becomes adherent to the surrounding tissues, most frequently the transverse colon and the mesocolon, the symptoms will tend to become much more constant. The pain shows characters which in the greater part are similar to those of a duodenal ulcer; that is to say, it comes on late after the ingestion of food, will often wake the patient at

night, and nearly always is relieved for the time being by taking more food. It differs, however, in one respect: it radiates more widely, and especially does it pass down to the left iliac fossa. It is often described as agonising and severe, and at first when the ulcer is non-adherent is relieved by alkalies. Later, if the transverse colon is involved, practically no relief is gained by this means. It is interesting to note that in the majority the attacks of severe pain are associated with vomiting, an indication that the stomach is involved as well as the jejunum. Generally a considerable amount of relief is given by the vomiting, which nearly always contains a large amount of bile. As a rule, hæmorrhage is not a marked feature, but there are cases where it is predominant, and I have two cases in my series in which the presence of repeated hæmorrhages, which had reduced the patient to a considerable degree of anæmia, were the only evidence that ulceration existed. In such cases the ulceration is usually much more superficial, and the absence of pain is accounted for by the fact that the deeper tissues are not involved. Generally the test meal shows the presence of a considerable amount of free acid, the reduction by the gastro-enterostomy having been very incomplete. In three of my cases, however, there was a complete absence of free HCl. The X ray evidence is usually of great value. In the long-standing cases direct evidence will be obtained, for the outline of a penetrating ulcer may be easily visible, or after the meal has passed from the stomach a meniscus may be left in the region of the stoma. In the earlier and more shallow ulcers the evidence will not be so definite and may chiefly consist of hyperperistalsis and irregular contractions of the stomach and duodenum. Direct evidence of some alteration in the outline of the stoma was obtained in 12 of my cases.

Treatment after Ulceration has Occurred.

If once ulceration has occurred, and there are definite symptoms or a positive X ray examination, operative interference is the only treatment that is likely to be of any value, but in the earlier stages, when there are simply ill-defined symptoms, a course of medical treatment may possibly prevent the progress of the ulcer, and it is in order to obtain the cases in this stage that a series of follow-up investigations is of extreme value. As regards the preventive treatment of the first operation it has been pointed out already that one of the factors of importance is the abolition of all mechanical devices to perform the anastomosis and the use of catgut sutures throughout. In addition, extreme care must be taken to bring about absolute apposition of the mucous coat, for if a gap be left the deeper layer of sutures will be exposed, and although of catgut they may persist for a long time and act as foreign bodies. For this reason I have abandoned the excision of the strip of mucous membrane surrounding the opening, although this method gives a much neater union. Another factor which I think will be of value, and which I am now adopting, is to place the anastomotic opening rather higher up on the greater curve, that is, about 3 in. from the pylorus. There was a tendency among all surgeons in the past to make the opening as near to the pylorus as possible, but it has been clearly shown that in ulcers of the lesser curve, where the opening has been placed high up, the results have been satisfactory, and as a general rule the higher the opening is placed the more complete is the neutralisation of acid. I was formerly of the opinion that, in the treatment of the established condition, excision of the ulcer and resuturing with catgut alone would often give rise to a cure; further experience has, however, shown that this method is unsatisfactory. Where it was adopted I have had four cases of recurrence, and I believe that the only treatment which is likely to be of any avail is to perform a partial gastrectomy which is sufficiently extensive to considerably reduce the acid. This may be one of the most difficult operations in modern surgery, especially if the primary operation has actually been of the no-loop variety. If the opening is placed 1–2 in. distal to the flexure the operation is comparatively easy, and it is now, therefore, my custom in all cases of pyloric and duodenal ulcers in which the acid in the test meal is abnormally high not to perform an absolute no-loop gastro-enterostomy, but to place the opening about 2 in. from the flexure. I have never found any evil consequences follow this step, and I believe that we have been obsessed with the idea of the value of no-loop anastomosis owing to the evil effects which unquestionably follow the use of very long loops. The division of the stomach should be made well proximal to the anastomosis, and if sufficient of the stomach is taken away it is almost certain that the acid will be reduced; that is to say, the method which one would advocate is to perform a simple gastro-enterostomy with the opening rather higher than usual and rather further from the flexure as the routine treatment for pyloric and duodenal ulcers, and to reserve the more extensive and dangerous operation of partial gastrectomy for the small number of cases that develop gastro-jejunal ulceration. Although the partial gastrectomy for these ulcerative cases is undoubtedly a severe operation, most of the patients stand it remarkably well. In my own series of cases it has been performed 13 times, and 11 cases have made a complete recovery, and after the partial gastrectomy have remained entirely free from symptoms. The question will naturally arise, if partial gastrectomy is unsatisfactory as a primary method of treatment, why should it be selected as the method of choice after the ulcer is definitely established? The answer to this is that the liability for secondary ulceration will probably depend upon the amount of stomach which is removed, so that if a partial gastrectomy is performed at the primary operation it will have to be extensive, and will carry a high mortality, and so big and extensive an operation should be reserved for the small number of cases that have definitely developed this complication.

Conclusions.

(1) Gastro-jejunal ulcer is a relatively rare complication of gastric and duodenal ulcer occurring in a little over 2 per cent. (2) Its frequency does not warrant the introduction of extensive operations for the treatment of the primary condition. (3) It is almost entirely limited to pyloric and duodenal ulcers. (4) It occurs almost wholly in the male sex, and is found in those cases in which the gastric acidity is high. (5) As a general rule it is found when the acidity after the primary gastro-enterostomy persists, this being possibly due to an anatomical variation in the distribution of the oxyntic cells in the stomach. (6) The symptoms of this complication, although slight at first, nearly always commence immediately after the primary operation. (7) The frequency of the condition will probably be diminished by performing the anastomosis rather higher up than usual. (8) The treatment of the established condition should be by partial gastrectomy, which will be aided by placing the stoma rather more remote from the flexure than is usual at the first operation.

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THE VALUE OF SOFT-RAY TECHNIQUE IN PULMONARY RADIOGRAPHY.

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THIS article is an attempt on the part of the writers to explain the value of the soft-ray technique of radiography,[1] especially as a diagnostic aid in dealing with early tuberculous lesions of the lungs. A radiograph of a lung affected with tuberculosis may be made to show a very different picture, according to the quality of the rays employed. The hard ray will penetrate an early focus of tubercle and give an appearance similar to that of normal tissue. Old fibrotic foci, however, are opaque to the more penetrating, and in fact, to all rays. The hard-ray radiograph is liable to show the older and healed lesions only, the more recent and much more important earlier foci being generally missed. In order to obtain really satisfactory results in pulmonary radiography, soft-ray technique must be employed.

Comparison of Techniques.

The appearance of a normal healthy chest in an adult taken by hard-ray technique varies enormously from the same subject taken by soft rays. Using the hard ray, the fine mottling of the connective and interstitial tissue of the lung is not shown, and the harder the ray the less this is discernible. All that is seen in the negative is a more or less uniform darkness over the whole of both lungs, with the ribs showing very plainly, even the bony markings being visible; the vertebral column, too, is often plainly distinguished through the heart shadow. The roots of the lungs appear as lighter shadows on each side, but their finer parts are not seen, nor are the delicate radiations which extend downwards, upwards, and outwards from them. This appearance, of course, varies with the hardness of the ray employed, the harder the ray the more easily does it penetrate the interstitial tissue of the lungs.

The appearance of the same chest taken by the soft-ray technique is very different. Scattered through the lungs on both sides there is seen a fine mottled and striated appearance, which is the pulmonary connective and interstitial tissue, the roots are much better defined, and their radiations plainly seen. The ribs appear as more or less indefinite shadows, and the fine bony markings on them are not evident. The details of the vertebral column are not seen, as the soft ray does not penetrate the heart and pericardium.

[1] By soft rays we mean a secondary voltage of 45 kilovolts = an equivalent spark gap of about 4 inches = 4 benoist. By hard rays a secondary voltage of 60 to 70 kilovolts = an equivalent spark gap of about 6 inches = 6 to 7 benoist.

(*Continued from opposite page.*)

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Comparing these two radiographs, the uninitiated would perhaps say that the one taken with the hard ray was the better picture of the two, and the one taken by the soft ray might perhaps be diagnosed as tuberculosis affecting the roots of the lungs, the mottling being also thought to be pathological in appearance. These characteristics are even more distinct in children; and in children of, say, about 8 to 10 years old the diagnosis of hilum tubercle has no doubt often been made from the appearance of a soft-ray radiograph of a normal chest of a child. It is a very important thing, when giving an opinion of a chest radiograph, to be able to distinguish what is normal from what is beginning to depart from the normal, which can only be done by an extensive experience of the soft-ray technique.

We might here mention that, in our opinion, it is extremely important that the radiologist should mark on the radiograph the conditions under which it was taken—i.e., penetration of tube, milliamperage, focal distance, exposure, &c. To resume, by using the hard-ray technique an excellent picture of the bones of the chest is obtained, but the finer details of the lung tissue missed.

In THE LANCET of March 17th, 1923, the present writers, in a paper entitled X Ray Examination of the Chest, discussed the value of X rays in the detection of pulmonary tuberculosis, and stated that, in their experience, they had come across several cases where physical signs were absent on clinical examination, but which showed, on X ray examination, signs of tubercle such as enlarged glands, and masses of infiltration round the hila, lesions which could not be made out with any degree of certainty by clinical means. They are now prepared to go even further than this, and to state that a recent pulmonary lesion in an early case, or a new focus in an old case, may be detected by the soft-ray technique, before definite physical signs have made their appearance. The old hard-ray method was of no use whatever as a diagnostic aid in early pulmonary tubercle; it showed up the old fibrosing lesions perfectly well, but penetrated and completely missed the early infiltrations, which latter are revealed by means of the soft-ray technique, as fluffy, indefinite, cotton-wool-like shadows. It was because of the general use of the hard rays in former years that X ray examination, as an aid to diagnosis in tubercle of the lungs, fell into disrepute. It is still, we believe, very commonly stated that tuberculosis of the lungs which cannot be discovered by careful clinical methods will not be discovered by X ray examination, either fluoroscopic or radiographic. This, we beg to submit, is certainly not always the case, and in every suspected case of pulmonary tuberculosis, whether it is an early new case or a suspected reinfection in an old case, competent X ray examination should be performed as a matter of routine, using the soft rays, the technique of which is given below.

Correct Technique of Chest Radiography.

Before discussing the correct technique of chest radiography, we might mention that, in our opinion, the following accessories are necessary to the radiologist: 1. Kilovoltmeter. This instrument saves the time and trouble of taking readings by equivalent spark gap, penetrometer, &c. 2. A reliable milliampermeter. 3. An automatic time switch.

Technique.—The following standardised technique has been adopted by the writers: Kodak duplitised films between two intensifying screens; distance between anticathode and film, 1 metre; secondary voltage, 45 kilovolts; milliamperage, 40; exposure, ½ to 1 second, according to the thickness of the subject, the double focus Coolidge tube being employed.

Standardisation of Technique.—In chest radiography it is important that the technique be standardised, as when a case comes for re-examination it is useless to compare the two radiographs, if the first one has been taken under one set of conditions, and the second one under another. In this respect the Coolidge tube and high-tension transformer are

invaluable, as the current passing through the tube and the penetrating power of the rays are independent of each other. If the auto-transformer rheostat is adjusted to give a certain secondary voltage, the penetration of the tube remains constant no matter whether 4 or 40 milliamperes are passing through the tube. An X ray journal should always be kept, and in it noted the conditions under which the radiograph is taken, so that if a patient comes for re-examination, the conditions under which the first radiograph was made can be duplicated. For example, patient A. B. was radiographed six months previously, and is referred by his specialist for re-examination, reference is made to the X ray journal, and it is noted that the previous entry reads: "Focal distance, 1 metre; penetration, 45 kilovolts; milliamperes, 40; exposures, 0·75 second"; Procedure: The auto-transformer rheostat is advanced until the kilovoltmeter shows a secondary voltage of 45 kilovolts; the rheostat controlling the heating current of the Coolidge tube adjusted until the milliampermeter shows that the tube is drawing 40 milliamperes, and the automatic time switch set for 0·75 second. The exposure is then made. In this way the radiologist is absolutely certain of having duplicated the technique of the previous radiograph. Development of the film must also be standardised, the usual method being to develop the film for five minutes at a temperature of 65° F.

A NOTE ON
CHRONIC ENDOCERVICITIS:
THE END-RESULTS OF OPERATION.

BY JOHN WILLIAM BURNS, M.D. DUB., F.R.C.S. EDIN.,

HON. SURGEON, LIVERPOOL SAMARITAN HOSPITAL FOR WOMEN; HON. ASSISTANT SURGEON, LIVERPOOL MATERNITY HOSPITAL.

IN 1922 I read an article[1] on chronic endocervicitis and its treatment before the North of England Obstetrical and Gynæcological Society, in which I stated my belief that the best way of dealing satisfactorily with cases of chronic endocervicitis, especially those associated with erosion, was to remove the eroded area along with the lower half or two-thirds of the cervical canal—i.e., the infected portion.

One of the main criticisms aimed at the particular type of operation which I had adopted was that it would probably have a very serious effect upon subsequent conception, pregnancy, and labour.

Technique of Operation.

Before dealing with the end-results I would like to refer to the operative procedure adopted in these cases. It is that devised by Sturmdorff, of New York, and described by Matthews.[2] The eroded area of the cervix is encircled by an incision which penetrates the vaginal covering of the cervix only. The area within the incision is seized with vulsella and pulled strongly downwards. The incision is deepened in an oblique manner with a knife or sharp-pointed scissors, so as to reach the cervical canal in the region of the junction of the upper and middle thirds. By this means a cone of tissue is removed which contains the eroded area of the cervix and the infected cervical lining. Four sutures are inserted—one anterior, one posterior, and one on either side. A vaginal pack of gauze soaked in acriflavine (1:1000) left in for 24 hours is all the dressing required.

There are several little points in the technique attention to which renders the operation very easy. The cone of tissue should not be completely separated until the lateral sutures have been inserted. As soon as the cervical canal has been exposed it should be seized with strong forceps, and pulled down in order to render easy the passage of the anterior and posterior sutures. If this is not done there is a danger of wounding the bladder in front and of opening the recto-vaginal space behind. The sutures should not be tied until all four have been inserted. The needles which I find easiest to use are small fully curved bayonet-pointed, and must be fairly strong. As a rule I do not dilate the cervix or curette the uterus.

Advantages.

These are: (1) It can be modified to meet any type of cervical laceration. (2) The whole of the infected portion of the cervix is removed and as a result healing takes place rapidly and by primary union. There is, therefore, a minimum amount of scar tissue formed. (3) There is no post-operative bleeding, as the four sutures used efficiently control the four segments of the cervix. (4) The leucorrhœa, which for the most part comes from the infected portion of the cervix, is quickly reduced, and the vaginal exudation is allowed to resume its normal acid protective quality. (5) A potentially malignant area of the cervix is removed.

Results, Immediate State.

The immediate results of this operative treatment of chronic endocervicitis are excellent. The vaginal discharge and backache disappear, and also the other discomforts arising from a profuse leucorrhœa. The patient's general health rapidly improves, probably because with the removal of the infected area she is no longer absorbing toxins. Out of 92 cases operated upon in 1922 and 1923, and investigated and followed up until a recent date, only three returned to hospital complaining that they were not cured. Of these two turned out to be cases of gonorrhœal infection, while the third was a woman who, in spite of advice, would persist in frequent douching. In view of the belief that malignant disease develops in a cervix which is chronically inflamed, it is interesting to note that out of over 200 cases examined microscopically I have not found a single case of early carcinoma or epithelioma.

The effect of this operative treatment upon subsequent conception, pregnancy, and labour is shown by the following analysis of the cases operated upon during 1922 and 1923:—

Total number of cases operated upon		120
Failed to report	28	
Cases in which supravaginal hysterectomy had been performed	3	
Cases at or beyond the menopause	5	
Unmarried	3	
Sterile	10	
Cases of salpingo-oophoritis	6	
	55	
Total cases in which pregnancy might be expected to occur	65	

Of these 65 cases 14 became pregnant within a period varying from two months to two years following the operation, that is, 21·5 per cent. This would appear all the more satisfactory when the fact is taken into consideration that the average age of these patients at the time of operation was 35 years. Of the 14 patients who became pregnant, one became pregnant twice within two years of the operation and 13 once, thus producing 15 pregnancies—

Total pregnancies		15
Cases which went to full term	10	
Cases terminating in miscarriage	3	
Cases not yet delivered	2	

All those cases which went to full term passed through perfectly normal labours. Of these ten cases two were primiparæ, one of which miscarried over the first pregnancy, conceived again within six months, and this time the pregnancy went to full term and terminated in normal labour. While the number of cases terminating in normal labour is somewhat small to base definite conclusions upon, yet I think these results show that this particular tracheloplastic operation has very little effect upon conception, pregnancy, or labour. The fact that eight of these cases had periods of sterility varying from two to eight years preceding the operation is suggestive that the infective condition of the cervix inhibits conception.

[1] THE LANCET, 1922, ii., 796.
[2] Journal of Surgery, Gynæcology, and Obstetrics, March, 1921.

Conclusions.

(1) The operative treatment of chronic endocervicitis brings about a rapid and permanent cure.

(2) As the chronically inflamed portion of the cervix is removed by this method what may be a potentially malignant area is destroyed.

(3) By rapidly decreasing the cervical discharge, which is always excessive in these cases, the vaginal exudation is allowed to resume its normal acid protective quality. This is most important from a bacteriological point of view.

(4) The operative treatment described has little or no effect on conception, pregnancy, or labour.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

THE inaugural meeting of the session was held on Oct. 12th, when the new President, Sir HOLBURT J. WARING, delivered an address on

OSTEOPATHY, CHIROPRACTIC AND OTHER CULTS, AND MEDICINE.

The PRESIDENT said he had received many inquiries from medical friends as to what was the exact nature of osteopathy and chiropractic, what were the advantages to be derived from its employment, and what disadvantages and dangers were to be feared. Briefly, the so-called principles on which these cults were founded were as follows.

Osteopathy.

This was stated to be a system of treating disease without drugs, and was based on the belief or assumption that all disease was caused by some part of the human organism being out of proper adjustment or alignment, as in the case of a misplaced bone, cartilage, or ligament; or, in the case of adhesions or contractions of muscle resulting in unnatural pressure on or obstruction to a nerve or a blood- or lymph-vessel. Investigation had shown him, however, that the different practitioners of osteopathy had varying ideas as to what was comprised in the term and what were the limitations of treatment. A later definition seemed to include the use of the term "inhibition," or the relief of pain or spasm of muscles by the application of steady pressure. This cult was founded in 1873 by Dr. Andrew T. Still, in the State of Missouri. He declared that all disease was due to or dependent upon a disturbance of the nerves or blood-vessels in the different parts of the body, especially in relation to the nerves coming out from the spinal column; that disease was also due to impairments of circulation preventing vital materials reaching different parts and organs. Osteopathy was therefore regarded as a therapeutic measure for the treatment of all disease, and apparently it was a mechanical measure, consisting of making alterations in position and relations by digital pressure or manual manipulations of the supposed diseased parts. The abnormalities of the spinal column which these practitioners considered caused disease were termed "osteopathic lesions," and often they were said to be characterised by localised areas of tenderness and muscular spasm. The means of treatment adopted by the osteopath was manipulation to correct the so-called deformity or osteopathic lesion, to bring into proper apposition displaced bony surfaces, to relax muscular spasms, and to eradicate tender points.

Chiropractic.

This, said the President, had been defined as the philosophical science and art of things natural, and a system of adjusting the subluxated vertebræ of the spinal column by hand for the restoration of health. The cult was originated by a layman, D. D. Palmer, and he founded a school, bearing his name, at Davenport, Iowa, in 1895. His theory was that disease was the result of pressure upon nerves as they emerged from the spinal column, this pressure being assumed to be caused by the vertebræ being in an abnormal position. Palmer said diagnosis was not necessary for the treatment of disease; all that was needed was to relieve pressure on nerve roots. Diseases of eye and ear were treated by both osteopaths and chiropractitioners in a similar manner, even though the nerves supplying them did not come off from the spinal cord.

The President said that a number of other cults had sprung from these two, but he only mentioned one of them, naprapathy. The practitioner of naprapathy stated that the basal centres of life were all located in the medulla oblongata or basal portion of the brain, and the nearest portion of the surface of the body to the medulla was the nape of the neck, and therefore to this region the various manipulations were applied. No medicines were prescribed, and surgical instruments were declared to be unnecessary; only thumb-pressure and free rubbing with the heel or the fist. Thus all the cults mentioned based their ideas and practice on a primary dogma which was untrue. Following upon the setting up of these cults, a number of irregular medical schools had sprung up in the States, self-styled colleges. They were mostly proprietary, and run with the object of making private gain rather than supplying well-qualified practitioners of the healing art. Apparently the only essential elementary education insisted on at most of these schools was ability to read and write; laboratory instruction, in the modern acceptation of the term, did not seem to exist, and no hospital clinical facilities were available. At one of them an elementary graduate was given the degree "L. W.," and a further qualification was awarded the style "T. N.," which investigation showed to signify respectively, "Live wire" and "Top notch"! At one of the largest of these schools anatomy was taught by a lecturer who appeared never to have gone through a course of dissection of the human body, and she had no recognised diploma or degree. Here also one of the most prominent courses was one on "salesmanship." In this course, personality, personal magnetism and psychology, various forms of advertising, selling the patient and selling the services of the practitioner, were given. They taught that there was no necessity to carry out isolation for infectious disease, and declared that osteopathy was something which could not be learned from books; only by personal instruction given by a qualified osteopath. Most of the students in these schools seemed to have been drawn from among people of the poorer class who had received but little education.

The treatment by osteopaths and chiropractitioners seemed to be very similar, consisting mainly of applying the osteopathic thrust or thump. In some cases immediately after applying this thump the operator made a clicking noise with his tongue, announcing to the patient at the same time that the displacement had been reduced, but he was enjoined to take a course of the treatment to become quite well.

Dangers of these Methods.

The President said patients suffering from severe affections were liable to be seriously damaged by having these methods practised on them. In one case of appendicular abscess the forcible treatment was applied, the abscess ruptured, and the patient died. There were many cases in which these manipulations had caused acute dissemination of carcinomata and sarcomata, and he had also seen many cases of tuberculous disease of joints in which serious damage had been caused by forcible manipulation and movement. In the United States epidemics of infectious disease have been due to lack of isolation and the practitioners of these cults carrying the infection broadcast. It could be stated that these manipulations, in some diseases and abnormal conditions, did no harm, but in the majority of diseased and abnormal conditions considerable harm might be done, and in some cases the sequel was an

irreparable injury. Some of the cures reported had probably been due to suggestion, others to the direct results of manipulations and the breaking down or separation of adhesions between muscles and nerves and the adjacent tissues. Patients were usually very averse to having anything rough or forcible done to them, and often, even in the presence of adhesions, the medical practitioner pandered to this and failed to carry out the obvious measures. The patient went to an osteopath, who had no such scruples, and his prestige was enhanced accordingly. Dr. F. Albee stated that he had never discovered, in all his experience, any foundation for the chiropractic theory, and, in his opinion, it was a menace to the public at large.

The Position of Osteopaths and Chiropractitioners in this Country.

In conclusion, the President pointed out that unless they possessed a medical qualification these people could only carry on their practices here as unqualified practitioners, and they were liable to prosecution for malpraxis. They were now seeking registration and recognition by Act of Parliament, desiring to be known as drugless healers, with limitations as regards practice. The speaker's own view was that our medical practice laws ought to be amended so as to place all practitioners of the healing art on the same educational level, because of the danger of the general public being deceived by a plausible theory and the making of unfounded claims; especially was this true in the case of sufferers who had grown desperate. A number of the graduates of the schools of these cults in the States had come to this country and set up practice, seeking to extend it by blatant advertisement. He thought the State should take a strong stand in protecting the health and preserving the life of the community.

Cordial thanks were tendered to the President for his address, on the proposition of Mr. V. WARREN LOW, seconded by Sir STCLAIR THOMSON.

Discussion.

Dr. DES VŒUX thought quacks would continue to exist as long as the medical profession were unable to cure all ailments, and it could not be denied that on occasion a quack had "wiped the eye" of a general practitioner. He did not think it would be wise for the profession to try to discourage quackery, especially as he did not think quacks did the regular profession any harm.

Dr. EUSTACE CALLENDER said he had seen many sad results of people going to quacks, even among people highly placed in society. He had seen three children, one after another, allowed to die of tuberculous meningitis without any steps being taken to protect them from the disease; they were only "treated" by a Christian Scientist. Such occurrences he regarded as wicked.

Mr. J. E. H. ROBERTS referred to a case of incomplete paraplegia in a man who was shot in the war. He recovered from that. Five years later he got work as a dustman, and after a short time of lifting weights of rubbish on to the dust-cart he began to get pain in his lumbar region, and this got worse. X rays showed a bony displacement, a subluxation of the second lumbar vertebra, but the bullet was harmlessly reposing in the muscle. He, the speaker, met a man who was an osteopath, a "D.O." of some place in America, and who was also a Licentiate of the Royal College of Physicians here in London, and asked him, as he said he cured subluxations of the spine, whether he could reduce it, showing him the radiograph. The answer was: "But that is a real subluxation; I should not advise you to touch that"; a decision Mr. Roberts had already arrived at. It well illustrated a mental attitude.

Mr. V. WARREN LOW did not agree with Dr. Des Vœux's eulogy of quacks, but he thought with that speaker that the medical profession should leave them alone. And he agreed that some Department of State should undertake the education of the public as to the general structure and functions of the body, so that imposition by specious claims would be rendered more difficult.

Dr. E. G. GRAHAM LITTLE, M.P., said the question of the recognition of osteopaths in this country would probably come before the House of Commons quite soon, in response to a meeting which was held in Parliament six months ago, and convened by an influential body of members who favoured osteopathy. That meeting was addressed by a qualified medical man who had forsaken the ordinary practice of medicine and had taken up osteopathic methods. The meeting was attended by all the medical members of the House at the present time, and several of them tried to obtain a hearing. After the hour's conversation by the medical man referred to, other speakers were allowed three or four minutes, and were then told that the company present did not desire any further information from the medical point of view. The resolution, submitted by the promoters, was carried. The Ministry of Health seemed to be most sympathetic to this movement, therefore the opposition must, he thought, come more from the general body of the medical profession, and some notice ought to be taken of the fact that the speaker for the meeting was himself a duly qualified medical man. The opposition should not be an official one organised by any great body, but among the profession itself.

The PRESIDENT, in a brief reply, said he thought it was the duty of every Government to protect its citizens from fraud. To recognise and allow to register practitioners of these cults in this country would mean the incursion into the ranks of healing of men with very little general education and training.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

A MEETING of this Section took place on Oct. 9th, when Sir ARNOLD LAWSON, the President of the Section, occupied the chair.

Penetrating Injuries of the Eye.

Mr. J. GRAY CLEGG (Manchester) initiated a discussion on this subject, his attempt being not to range over the different varieties of perforating injuries and their treatment, but to deal with some practical and interesting points. During his 25 years at the Manchester Royal Eye Hospital nearly 213,000 cases of accident had been treated, and 1448 of those had been in-patients under his care. There were among them 859 cases of penetration or rupture of the globe. The fullest possible history of cases of penetrating wounds should be obtained, and it must be determined whether complete penetration has taken place, and whether the mechanical agent has been withdrawn or still remains in the eye. When examination by ordinary methods failed, perforation could often be proved by means of the slit-lamp.

First as to the *cornea*. If the wound in it was small and aseptic, he said, no active surgical treatment was required. If the iris was prolapsed or caught in the deeper part of the wound, a foreign body was not likely to be still retained. If there was no such prolapse there was a greater probability that the foreign substance was still in the eyeball. For prolapsed iris the operator could do either (1) reposition through the wound (often unsuccessful); (2) reposition by making a small corneal incision with a keratome at a point 180° from the wound, and passing in an iris repositor or blunt hook, and separating the iris from the cornea by traction; or (3) excision of the prolapsed portion, which is the usual method he had followed. If the decision reached was to excise the prolapse, he advocated, in suitable cases, the use of small, fine-ribbed capsule forceps, especially when the iris had become friable owing to inflammatory changes a few days after the accident. When the corneal wound was large and tended to gape he favoured suturing the cornea, using Webster Fox's slit-ring forceps. Horse-hair or the finest silk-worm gut were the suture

materials he recommended. In some cases it was an advantage to raise the conjunctiva at the corneal limbus, undermine it for some distance, and so suture it that the wound was well covered. For ragged and irregular wounds a conjunctival covering was desirable, and for this he suggested the Nuel suture. He discussed the disadvantages of suturing the conjunctiva over the wound. When there has been a delay of several days before the ophthalmic surgeon is consulted Mr. Clegg said that immediate operation was sometimes needed, but each case must be decided on its merits. Where iris was prolapsed or adherent to the corneal scar, and in two or three weeks the eye was quiet, in most cases operative interference should be undertaken to relieve dragging. This could be done by one of three methods: (*a*) An iridectomy at a position diametrically opposite the site of the wound; (*b*) an iridectomy at either side of the anterior synechia; (*c*) complete severance of the attached portion from the rest of the iris, with or without partial iridectomy.

Mr. Clegg next discussed the question how far it was safe to leave a traumatically produced anterior synechia in a quiet eye months after an accident. Mere perforations or clean cuts were left to recover as best they could. Wounds of the lens, associated with penetration of the globe, always complicated matters if there was anything more than a fine tear in the capsule not large enough to allow aqueous to invade the substance. With regard to the question as to whether it was advisable to remove lens substance when there was a recent wound of the cornea, he thought extraction (when there was a hard nucleus), or expression through the original wound, or lavage, or suction of the soft cortex should be done when there was extensive rupture of the capsule, as the presence of lens substance in the anterior chamber increased the possibility of sepsis, diminished the osmosis at the filtration angle, and might even lead to endophthalmitis phako-anaphylactica. But when the corneal wound was not large and the lens substance not greatly swollen, the removal of the lens could be left to absorption in a young subject, or to a later extraction in a person over 30 years of age. If vitreous protruded into the anterior chamber little could be actively done except when it prolapsed through the corneal wound. The prolapse should be snipped off and the eye protected against infection.

When the wound was at the corneo-scleral junction or in the sclera the case was more serious, but there was no longer fear of the "danger zone." If ciliary body or choroid were prolapsed it could only be excised. Even large clean wounds of the sclera might heal well and a useful eye be retained. Covering with conjunctiva was desirable in all cases, and the edges of the sclera could be brought into contact by Nuel's suture; it was rarely necessary to pass the suture material through the whole thickness of the scleral tissues. One late effect of even the cleanest wounds of the sclera might be detachment of the retina, and the question was, Could anything be done to prevent this? If wounds of the sclera were of some days' or even weeks' standing, questions arose other than those connected with the wound itself. In all extensive perforating wounds of the globe it was necessary to consider whether recovery was possible with the retention of a globe which would have useful sight and would yet not be a threat to the fellow eye. It was, he thought, rarely wise to condemn an eye to evisceration or excision as soon as it was seen to have suffered. At least a week should be allowed to pass before condemnation was pronounced, and there was practically no fear of sympathetic trouble during that short time. He asked the opinions of members as to whether any good resulted if an exciting eye was removed when sympathetic disease had already started in the other eye.

With regard to foreign bodies penetrating and remaining on the globe, these were divisible into magnetic and non-magnetic, and both could be classified into radio-opaque and radio-transparent. The first named could be accurately localised by the methods of Mackenzie Davidson or Sweet. Sometimes the foreign body could be seen on focal illumination by the ophthalmoscope, or it was evident on trans-illumination. If a non-magnetic substance, such as glass, was causing no obvious irritation it could sometimes be safely left. Chemically irritating substances, such as copper, eventually led to loss of the globe, hence every possible effort at removal of such materials must be made. Magnetic substances were best removed by the magnet, for siderosis and opacity of lens might otherwise ensue. If the iron or steel fragment were in the anterior chamber, or even in the iris tissue or in a wounded lens, it could usually be extracted through the original wound, though sometimes this wound had to be enlarged. If the fragment was embedded in the iris tissue it was, he considered, good surgery to make the incision over its position and cut off the damaged iris with the imprisoned chipping.

Dealing with other aspects of the subject Mr. Clegg said that excision of a suppurating lacrymal sac was important.

Mr. G. H. POOLEY (Sheffield) said that as a result of many years of experience and consideration he had arrived at the conclusion that the ophthalmic surgeon was justified in applying conservative modern measures to the eye when that organ had received a penetrating wound, and that this policy should replace the more anxious one which in the past had led to many eyes having been excised within a few days of the accident happening to them. Even mild sepsis of the eye could be successfully dealt with, and a blind quiet eye was a better possession than an artificial eye. He divided penetrating wounds of cornea or sclera or both as follows: (1) Without prolapse of iris or other tissue and without the retention of a foreign body or injury to the lens. (2) With prolapse of iris or other tissue but without retention of a foreign body or a lens injury. (3) With or without prolapse of iris or other tissue or injury to the lens, but with the retention of a foreign body within the eye. (4) The last named and injury to the lens in addition. These he discussed in some detail, making the following points. A straight clean cut of less than 4 mm. in length seldom gaped much, whether it was in cornea or sclera. A wound longer than this should be closed; if in the sclera by the finest 30-day catgut, the sutures picking up the outer layers of the sclera about 1 to 2 mm. from the wound on each side, and so tied as to invaginate the cut edges of the sclera and hold them fairly tightly in apposition. To the conjunctiva should be applied buried catgut sutures. He used a slightly curved needle about 10 mm. long. A gaping corneal wound could be kept in place by indirect suture. In the cases in which a part of the iris was prolapsed, the portion should be picked up, gently pulled a little further out of the wound, and cut off. Prolapsed portions of ciliary body, choroid or retina, and beads of vitreous should be cut away. Foreign bodies should be removed by the nearest and easiest route. Even if such foreign bodies should be septic, they could be retained for a long time without causing trouble, though they should be removed as soon as their exact site had been determined. He had successfully removed glass and steel fragments from eyes in which they had been reposing for years. Dealing with injuries to the lens, Mr. Pooley advocated well washing the eye out and removing as much of the injured lens as possible, to prevent it from swelling and adhering to the wound afterwards. His rule was to try to save every eye, however badly damaged, deferring his decision as to enucleation until about the third week. If vision was never likely in an eye, and it was the seat of keratitis punctata, he removed it. The question of sympathetic ophthalmia Mr. Pooley discussed in some detail, remarking that no eye should be taken out within the first fortnight; he also entered into a description of the technique of scleral suture.

Mr. CHARLES GOULDEN spoke of the treatment of certain difficult cases of prolapse of iris, and

of non-magnetic foreign bodies present in the anterior chamber. The method was to make a small incision opposite the perforating injury, 3 mm. in width, so as to admit a repositor. Then the prolapsed iris was dealt with. If any portion of iris remained entangled in the wound, the repositor could be passed through the eye so as to disengage it. With regard to the treatment of large perforating wounds, especially those which perforated the sclera, he thought, contrary to Mr. Pooley's view, that it was unnecessary and dangerous to insert scleral sutures, because of the likelihood of loss of vitreous. When a serious injury was followed by a gaping wound, a good plan was to make an incision round the conjunctiva, then draw the conjunctiva over the wound, and so close it. He discussed the technique of removing magnetic foreign bodies by means of the electro-magnet.

Mr. M. H. WHITING pointed out the advantages of the Haab magnet over the Mellinger for the extraction of magnetic substances from the eye. The horse-collar of the latter instrument, its smaller power compared with that of the Haab, as well as the difficulty of preventing it touching the eye when being used, were among the factors mentioned.

Mr. ELMORE BREWERTON said his practice when he encountered prolapse of iris was to make an incision less than 90° from the wound before dealing with the prolapsed iris.

Mr. T. HARRISON BUTLER said he had been using the Mellinger magnet for 15 years and had not seen the disadvantages from it which Mr. Whiting mentioned. With regard to sympathetic ophthalmitis, he considered that by removing the exciting eye in the early days many eyes would be saved. But it was necessary to keep careful watch with the slit-lamp. If the latter showed commencing danger he at once instituted the treatment as for actual ophthalmia. This had resulted in the saving of several eyes.

The PRESIDENT said that while it was true that an eye could safely be retained a fortnight or so without risk of sympathetic ophthalmia, he recently had a case in which that complication ensued ten days after an apparently trivial injury, accompanied by keratitis punctata, so that the eye had to be excised.

Mr. CLEGG and Mr. POOLEY replied.

Clinical Cases.

Mr. J. D. M. CARDELL showed and carefully described a case of Kruckenberg's spindles in a single woman aged 30. By means of the slit-lamp Miss Ida Mann found that the pigment was in the posterior layers of the cornea; it seemed to consist of a multitude of closely-set brown rings. Thomson and Ballantyne regarded the condition as congenital.

Mr. POOLEY showed two cases of punctured wound of the cornea, in association with his remarks in the discussion of that subject.

Reviews and Notices of Books.

HANDBOOK OF DISEASES OF THE THROAT, NOSE, AND EAR.

Edited by A. DENKER (Halle) and O. KAHLER (Freiburg). Vol. I., Diseases of the Air-passages and Mouth: Anatomy, Development, Physiology, Methods of Examination. Berlin: Julius Springer; Munich: J. F. Bergmann. 1925. Pp. 1068. M.84.

THIS volume is the first of a great work which, when complete, is to consist of nine volumes. Of these the first five will deal with the upper air-passages, the next three with the ear, and the last with the thyroid and thymus glands and external structures of the neck. No fewer than 120 authors are concerned in this work, of whom 21 contribute to the present volume. This, consisting as it does largely of the spade-work preliminary to the actual description of diseases and their treatment, is perhaps less intrinsically interesting to the practising laryngologist, but it presents an extremely thorough foundation for what is to follow. Even the comparative anatomy of the nares, fauces, and larynx, as well as their embryology, is described and illustrated, that of the nares being particularly good. In the section on physiology the physical characteristics of odorous substances, and the conditions which influence their absorption, are well explained by Prof. Zwaardemaker, of Utrecht, who, indeed, covers the whole subject of olfaction, of which he has made a special study. Similarly, Prof. Skramlik, of Freiburg, deals at length with the sense of taste. The chapters on methods of examination are likewise full of detail, but here a certain narrowness of outlook becomes apparent. Under anterior rhinoscopy only one speculum, Hartmann's, is advised and illustrated: of bronchoscopic methods, distal illumination is dismissed in five lines as unsatisfactory, and Chevalier Jackson is not mentioned, except in the list of references at the end of the chapter. Indeed, the workers of other countries receive throughout scant recognition. The book is provided with a good index, a detailed table of contents, and a long list of references at the end of each chapter. There are 709 illustrations, all good, and some of them, notably the photomicrographs, are beautiful examples of colour printing. As a work of reference this volume will be of great value to specialists.

THE MIND IN HEALTH AND DISEASE.

An Introduction to the Mind in Health and Disease. For Students and General Practitioners interested in Mental Work. By T. WADDELOW SMITH, F.R.C.S., Deputy Medical Superintendent of the City Mental Hospital, Nottingham. London: Baillière, Tindall and Cox. 1925. Pp. 235. 10*s.* 6*d.*

IN setting out to write an introduction of this kind Dr. Waddelow Smith has undertaken a difficult task. Such a book must of necessity be elementary, but even so, the author surely underrates the equipment of his readers, who are presumed to be medical men and students, in a passage such as the following, from the anatomical description of the central nervous system:—

"The membranes . . . are continued all over the cerebral hemispheres and have between them and the nerve cells of the hemispheres a layer of cerebro-spinal fluid, so we find the little nerve cells, all over the surface of the brain and also at its base and in its substance, are bathed by this nourishing fluid by means of the layer just described and the ventricles."

In the section dealing with mental disorders the author has a considerable experience of mental work behind him, and there are many practical hints which should be valuable to the beginner. But here the purely Freudian definition and interpretation of the morbid phenomena is to be deplored. It is hardly a generally accepted view, for example, that the anxiety neurosis is "characterised by the failure of the individual properly to adjust his or her somatic and psychic sexuality." In an introduction to what will be of practical utility it is very important that the reader should be guided aright, and we do not feel that this book can be wholly recommended as a help in difficulties.

Old and New Viewpoints in Psychology. By KNIGHT DUNLAP, Professor of Experimental Psychology in the Johns Hopkins University. London: Henry Kimpton. 1925. Pp. 166. 10*s.* 6*d.*

THERE is a growing number of practitioners and laymen to whom psychology is an extremely interesting side-line. It may require a great deal of patience, as well as previous knowledge, to read appreciatively an exhaustive text-book, and many readers are content to derive their knowledge from small synopses of more or less doubtful authority. Prof. Knight Dunlap's book is a very good example of this "popular" class of work on psychology, while it carries exceptional weight, for the author is well

known as a conscientious teacher. The five articles were originally delivered as lectures; those on mental measurements and present-day schools of psychology are dull, but give an impartial survey of recent progress in both these subjects. The psychology of the comic is a good piece of constructive reasoning on a subject of universal appeal, and the article on spiritualism is less speculative and carries a sober warning with it. The last, on the reading of character from external signs, is frankly negative. On the whole, the book shows the defects of any random collection of articles or lectures. It lacks vitality and coherence, besides which the writer is too dogmatic for such a controversial subject.

THE EMOTIONS.

Experimental Investigations into the Emotional Life of the Child Compared with that of the Adult. By HELGA ENG, Oslo. Translated by GEORGE H. MORRISON, M.B. Edin. London: Humphrey Milford, Oxford University Press. 1925. Pp. 243. 21*s*.

A LARGE amount of work has already been done in measuring the physical concomitants of emotion, and in the book before us Miss Eng sets out to answer the question whether psychical experiences of a definite character are accompanied by definite changes in the volume-pulse curve and in the respiratory curve, and, secondly, whether such changes in children might indicate a feature peculiar to the child's emotional life. Using the kymograph, the pneumograph, and the plethysmograph, the author finds that the emotions dealt with in the experiments can be arranged in three pairs, each pair showing opposite expression changes on the recording instruments; attention and activity, displeasure and pleasure, depression and excitement are thus opposed, the first mentioned in each pair being marked by a fall in the volume curve, decrease in pulse height, retarded pulse, and retarded respiration, whilst the second shows opposite changes. In experiments on the effect of stimuli no difference was found between children and adults, but a phenomenon, which at first sight might be expected to vitiate the experiments, proved to be of interest. The spontaneous emotional state of the subject, as revealed by introspection, often found expression in the curves, and it is here that age differences became manifest, for spontaneous emotions were, in the case of children, mostly related to sensory impressions, whilst in adults they were more often connected with events of greater personal psychical content; moreover, in these spontaneous emotions, pleasure is more notable in the child and displeasure in the adult. The author concludes with an expression of the opinion that the physiological processes concerned are "definitely dependent on the psychical processes, and not the other way round." About half the book is taken up by tabular records of experiments, and nine plates are devoted to reproductions of actual tracings. To describe laboratory investigations of physiological reactions as an investigation of the emotional life of the child may disappoint those readers who regard that emotional life as made up largely of personal problems and the inter-play of instinctive tendencies. But to say so is in no way to belittle the value of this record of conscientious work. The translator has done his part well, and the book will interest all who are concerned with youthful behaviour.

PHYSICAL SIGNS.

Perkussion und Auskultation. By Dr. HERMANN VIERORDT, Professor of Medicine at the University of Tübingen. Berlin and Vienna: Urban and Schwarzenberg. Pp. 95. M.2.

THE author of this little book has succeeded in condensing his information so well that practically all the student may require to know about percussion and auscultation (as far as they can be acquired from a book) is to be found in these 95 pages. Other parts of the body besides the chest are dealt with as far as their examination by percussion and auscultation is concerned, and the reader is taught how to distinguish between ascites and an ovarian cyst, and how to percuss such organs as the kidneys when they are displaced from their normal site. A book like this is useful to the busy practitioner who, without it, is apt to fall into slipshod ways and to simplify his technique to the vanishing-point. Under such circumstances a small book, which will slip into an overcoat pocket, may jog its wearer's memory, reminding him of those diagnostic methods from the practice of which, owing to pressure of time and want of contact with his fellow practitioners, he has lapsed.

TUBERCULOSIS.

Diagnostik und Therapie der Knochen- und Gelenktuberkulose. Second edition. By Dr. EUGEN KISCH. Leipzig: F. C. W. Vogel. 1925. With 6 tables and 367 illustrations and charts. Pp. 296. M.20; bound, M.23.

THIS profusely illustrated work comes from the Hohenlychen Institute for Surgical Tuberculosis, attached to the University Surgical Hospital of Berlin under the direction of Prof. A. Bier. Hohenlychen may be said to be to Germany what Alton is to England; and, like its English counterpart, Hohenlychen is a standing demonstration of the fact that heliotherapy is not a monopoly of the Alpine and sub-Alpine levels. It is an institution where a great variety of therapeutic measures serve the patients' needs. Hohenlychen makes considerable use of treatment by passive congestion, and those who have abandoned this form of treatment in surgical tuberculosis may wonder if the success of hyperæmia at Hohenlychen may not be due to the many other remedies provided there. The guiding principles of Hohenlychen are that surgical tuberculosis is a disease for conservative treatment, that success can be achieved at any altitude, and that only in exceptional cases should the surgeon resort to the knife. The book is divided into two parts, general and special. The former deals with the physiology of pigmentation, the experimental foundation of the combined treatment with sunlight and hyperæmia, the actions of various forms of artificial light, and the technique of their administration. Information is given as to the action of iodine taken by the mouth in association with passive hyperæmia, and as to the improvement to be effected in the general condition of debilitated patients by the intravenous injection of the blood of mammals other than man. In the special part, an account is given of the disease as it affects each structure, and a whole chapter is devoted to a study of the re-absorption of tuberculous sequestra. The book is a valuable summary of modern German teaching.

Contributions to the Study of Tuberculosis by the Research Department, National Jewish Hospital for Consumptives. Denver, Colorado. 1924.

THIS large volume, which is the fifth of the series, is a collection of the papers published by authors associated with the Research Department of the National Jewish Hospital for Consumptives. The earlier papers deal with the problems of tuberculosis in a more or less general manner. Several papers on research follow, and the last seven contributions are clinical. Most of the papers published in this volume have already appeared in some American or English journal, but the volume will serve the useful purpose of showing the patrons of the hospital the very considerable output of the Research Department.

Recovery Record for Use in Tuberculosis. Second edition. By GERALD B. WEBB, M.D., and CHARLES T. RYDER, M.D. New York: Paul B. Hoeber, Inc. 1925. Pp. 79. 82.

THE first half of this book contains hints on how to recover from tuberculosis, and the second half contains charts on which the patient is invited to record his

temperature, pulse, weight, general notes, and questions for his physician. On each page, above and below the chart, there is a proverb intended to give the reader a hint as to how to think and live. Both the advice given in the first half of this book and the proverbs quoted in the second half show that the authors attach more importance to rest than to any other factor in recovery from tuberculosis. To the advocates of exercise as a method for treating tuberculosis is addressed the following quotation from Trudeau: "I know I have hurt nobody by rest, but I am quite sure I often have by allowing them to exercise." Solly is quoted as having said: "The wise have four times as good a chance to recover as the foolish." This is surely an over-estimate of the fool's chance.

Tuberculosis: Its Prevention and Treatment. By J. LAIRD, L.R.C.S. & P.I. Second edition. Bristol: John Wright and Sons, Ltd. 1925. Pp. 130. 5*s.* 6*d.*

THE chief feature of this little book is its advocacy of calcium in the prevention and cure of tuberculosis. Calcium, it would seem, is the key to the problem, not only of tuberculosis, but also of such diseases as cancer. In the first instance its influence is beneficial, in the second it is detrimental, for "cancer is chiefly a disease of advanced life, when the salts of calcium are in excess in the system, and may act as the predisposing cause of the disease." Medical readers may doubt whether the solution to complex problems can be so simple as the author thinks.

VETERINARY DIAGNOSIS AND TREATMENT.

By G. E. JORGENSON, A.B., M.D., N.D.V., former State Veterinarian of Iowa; Consulting Pathologist and Associate Editor, *North American Veterinarian*. London and New York: D. Appleton and Co. 1925. Pp. 441. 12*s.* 6*d.*

THE author is evidently well informed and always gives a reason for the conclusions he forms and the treatment he adopts. This somewhat uncommon practice should appeal to readers who wish to be rational. He gives 132 case reports of wide range; his treatments seem to have brought about a high proportion of recoveries. Case 8 (fibrinous pneumonia in a horse) and Case 10 (pneumonia in a cow) seem to have been treated, contrary to orthodox practice, by purgatives. However useful in bronchitis they should be given cautiously in serious pneumonia. It is somewhat surprising to learn that the author has never heard of epilepsy in swine; convulsions, falling, and foaming at the mouth are common, and although they may not be signs of true epilepsy they are certainly epileptical. We do not agree that the diagnosis of cæcal impaction is easy, and the action of drugs is modified by the fact that the cæcum is a cul-de-sac undisturbed by the flow in the main tube. Impaction of the colon often follows impaction of the cæcum. It is impossible to commend the autopsy of the cow with anthrax (p. 282 et seq.), for which the two cases that developed later may well have been responsible.

There is much sound reasoning in this book, and it is well produced. We prefer the author's description of its objects to the publisher's statement that it is "a standard practical guide for all farmers." Farmers would remain uninterested in the sino-auricular node of Keith and Flack, polynuclear neutrophiles, and basophiles.

JOURNALS.

QUARTERLY JOURNAL OF EXPERIMENTAL PHYSIOLOGY. Vol. XV., No. 2.—Corpus Luteum Extracts and Ovulation in the Rabbit, by Walter P. Kennedy. It is now a generally accepted theory that at least one of the functions of the corpus luteum is the prevention of ovulation so as to maintain the rhythm of the œstrous cycle and to avoid superfœtation in pregnancy. There is a considerable amount of clinical evidence that extracts of corpus luteum exert a specific action on the functional activity of the ovary. Extracts were made from a powdered desiccated product and shaken up with the required amount of saline, or fresh extracts were made from corpora lutea dissected out from fresh cow ovaries. The injections were given in the marginal vein of the ear or in one of its larger branches. The general picture of the histological findings was one of degeneration and inhibition of the cyclical changes. The general results are that a substance or substances can be extracted in the cold from the corpus luteum of the cow in the fresh or desiccated state, which inhibits ovulation in the rabbit if injected intravenously in sufficient dosage.—The Significance of the Elastic Tissue in the Human Fœtus, by Evelyn E. Hewer. The wide distribution and early appearance of tissue with a great affinity for elastin stains indicates that this type of tissue plays an important part in the functional development of many organs; its appearance is in certain cases correlated with the time at which functioning of the organ begins.—The Action of Pituitary Extract on Urinary Secretion, by Nicholas S. Craig. Ox pituitary (posterior lobe) was used. The author found that in anæsthetised animals, intravenous administration of the extract produced a definite diuresis. Continuous intravenous administration of pituitary extract in 0·9 per cent. saline solution produces the same result. In unæsthetised dogs pituitary extract administered subcutaneously controls the diuresis which normally would result from the administration of water or normal saline by the mouth. If concentrated saline solution is used diuresis results. The author also deals with the action of pituitary on the absorption of fluid from the alimentary canal and on the blood composition. There are further studies on the pituitary by Launcelot T. Hogben on the "Avine Depressor Response," who finds that the substance present in pituitary extracts causing a powerful depressor response in the bird is a specific property of the fresh gland substance; it does not belong to the category of capillary poisons common to extracts of many tissues, and has no connexion with the histamine-like substance responsible for the secondary fall in carnivora, and seems pre-eminently associated with the pars nervosa; it is present in the pituitary of fishes, amphibia, reptiles, birds, and mammals. Another paper by the same author and Gavin R. De Beer deals with Localisation and Phyletic Distribution of Active Materials in the Pituitary.—The Reactions of the Pupil in the Chloralosed Animal, by R. J. S. M'Dowall. The author observed that if an animal such as a cat be anæsthetised with chloralose the pupil remains of normal size, but is extremely sensitive and rapid in its reactions. The reactions of the pupil give not only an indication of the state of the autonomic nervous system of the animal, but they may be utilised as an index of sensation, not only from areas supplied by the spinal nerves, but also from those supplied by the autonomic nervous system, and as a means of tracing out the paths of afferent impulses in the sympathetic nervous system.—R. J. S. M'Dowall and B. L. Worsnop describe new methods of demonstrating changes in the tone of the arterioles.—W. G. Millar records observations on the hæmatocrite method of measuring the volume of erythrocytes, showing that the speed of centrifuging has an important bearing on the accuracy of measuring the volume of erythrocytes by the hæmatocrite.—A. D. Macdonald, in describing the action of pituitary extracts on intestinal muscle, throws doubt on the commonly held view that the pituitary gland contains a general stimulant of plain muscle-fibres.

SOMERSET'S MENTAL DEFECTIVES.—Sandhill Park, Bishop's Lydeard, formerly the seat of Sir W. P. Lethbridge, was last week opened as a home for the mental defectives of the county of Somerset. The house, built in 1720 by Sir Thomas Lethbridge, and about 150 acres were bought for £16,000, and the building has been adapted by Sir George Oatley, the architect of the new extensions of Bristol University. There is at present accommodation for 119 patients, but the estate is ultimately to be developed into a farm colony for the feeble-minded.

IMPERIAL SOCIAL HYGIENE CONGRESS,

WEMBLEY, OCT. 5TH–7TH.

(*Concluded from p. 778.*)

ON the afternoon of Tuesday, Oct. 6th, the conference discussed

Social Hygiene in Relation to the Mercantile Marine.

In the absence of Sir George Buchanan, Dr. F. J. Coutts, of the Ministry of Health, introduced a paper prepared by them, in which they mentioned the difficulties met with in trying to treat seamen who moved from place to place. The problem was especially important in view of the part played by certain seaport towns in spreading venereal diseases. International agreement was clearly desirable, but there had been many obstacles, including the system by which in some countries seamen or shipowners were expected to bear the cost of treatment; the difficulty of making a man's case papers intelligible to the medical staff at foreign ports; and the practical difficulty of how to express the results of Wassermann tests. The inquiry into this last had led to the recent researches at Copenhagen into the comparative value of different blood tests for syphilis. The agreement on the international treatment of venereal disease had been signed by Argentina, Belgium, Cuba, Denmark, Finland, France, Great Britain, Greece, Italy, Monaco, New Zealand, Peru, Roumania, and Sweden. The United States was not prepared to adhere to the agreement, but in practice it was hoped that satisfactory arrangements would be made. It was greatly to the credit of the British Social Hygiene Council that the agreement was a practical instrument rather than a mere sign of theoretical unity of purpose. Medical facilities were to be provided free for seamen in the chief ports of the contracting parties; specialist officers were to be available in the clinics, and a card which could be universally understood was to be used. Experience had shown the scheme to be useful and exemplary arrangements had been made at Liverpool. Seamen going abroad were to be furnished with a list of treatment centres elsewhere.

A paper was read for Mr. M. R. K. Burge describing the work of the Joint Maritime Commission set up by the International Labour Office in coöperating with other national and international bodies in the campaign against venereal disease among seamen. Although pleased with the steps taken by Governments to provide treatment, the Commission hoped that such activities would not obscure the necessity for preventive measures. A report on prophylaxis was, he said, being got ready by the International Labour Office.

Welfare Work for Merchant Seamen.

Fleet-Surgeon W. E. Home said in his paper that the valuable services of seamen to the community entitled them to more care. Their occupation, which early removed them from home and its training, was quite exceptional amongst trades, and so were their risks and discomforts. The last official statistics, dealing with the years 1900–02, showed that seamen had nearly twice as many deaths per 1000 as "all occupied males" in England and Wales, and four times as many deaths from accidents. The accident death-rate was double that of coal-miners. Most workmen lived in communities with other people, their health being watched by sanitary authorities; but the merchant seamen had no one specially to look after them and report on their conditions. The United States saw that its men were vaccinated, inoculated against typhoid, or given quinine; but in spite of heavy mortality nothing of the kind was done in England. Accidents and their prevention seemed unconsidered. The problem of venereal disease amongst seamen was the result of a vicious circle. The want of home influence led to drink and mischief; they led to infection, and infection might prevent the man ever having a home of his own. In 1924 the Seamen's Hospital at Liverpool had handled 438 new cases, of which 169 were syphilitic. After referring with admiration to the work of the late Miss Agnes Weston, he said that everything preventing aimless idleness—gymnasiums, entertainments, concerts—must be encouraged, and the Social Hygiene Council was arranging for sports grounds near harbours.

[An analysis by Fleet-Surgeon W. E. Home of the causes of death amongst merchant seamen appeared in THE LANCET of Oct. 3rd 1925.]

Arrangements in the Empire.

Dr. C. L. Park's paper gave an account of arrangements in Australia by which every seaman reported as infected was taken in charge by the quarantine authorities during the whole time his ship stayed in Australian waters. Hospital beds and specialist treatment were provided for him, and on his removal to another port the treatment was continued there. The Australian laws ensured that infected seamen were kept under observation until their disease had ceased to be infective; but the facilities did nothing towards preventing fresh infection being incurred by the healthy, though recreation was available in certain ports.

Major H. B. Jeffs contributed the information that Canada imposed a fine of $200 for any emigrant brought to a Canadian port of entry suffering from a venereal disease, any such emigrant being deported at the steamship company's expense. Persons rejected for venereal disease might not apply again for entry. He described the free clinics for seamen at Canadian ports, stating that there were 56 free venereal clinics in operation in the Dominion, besides other institutions; about 330,000 treatments were given in a year. Prisoners entering reformatories and gaols were subjected to a Wassermann test and treated if necessary.

Sir Claude Hill assured the Congress that the Red Cross would give all possible help in propaganda. Dame R. Crowdy thought that the Congress had concentrated too much on the technical side of prevention and not enough on the moral factors.

White Slave Traffic.

Mr. S. Cohen read a paper on the suppression of the white slave traffic. He said that it had gradually been reduced to very small proportions because the steamship companies refused to carry the women and the Home Office refused to let them land in England. He hoped that tolerated houses would be put down everywhere; if this were done there would then be no traffic. It was a great advance that Hungary and France had refused to allow any foreign women into their tolerated houses, and perhaps the other Latin countries would follow this lead.

Mrs. Neville Rolfe appealed to Mr. Bascom Johnson (Director of Special Inquiries for the League of Nations) to say whether venereal disease had any special relation to licensed houses. Mr. Johnson replied that they prevailed in the same areas, but investigation of relationship was still incomplete. Prostitutes were in the habit of following the American fleet to Panama for its winter manœuvres; if there were no brothels in which they could find lodging they would not go.

Dr. David Lees complained that a British seaman kept in hospital at a place like Port Said would lose his ship and his pay; and as there was no British Consul there he would be worse off than a foreign sailor in a British port. There should be Government subsidy to set up sailors' homes in every port. The State, through the local authorities, should provide 75 per cent. of funds. He mentioned that Edinburgh was to be invited to build such a home.

Surgeon-Commander T. B. Shaw attributed most venereal disease to drink, and Mr. E. B. Turner, in supporting the plea for sailors' homes, recalled old London conditions.

After the meeting a film dealing with venereal disease was exhibited.

Treatment of Venereal Disease in England.

At the morning session on Wednesday, Oct. 7th, Sir Kingsley Wood, Parliamentary Secretary to the Ministry of Health, who presided in the absence of Mr. Neville Chamberlain, said that the Government had not been ungenerous in meeting 75 per cent. of cost involved in treating venereal diseases. There were to-day 193 treatment centres in England and Wales, and there were 14 hospitals approved for the accommodation of women and girls and seven special institutions for infected pregnant women. There was much evidence of the increasing willingness of people to come forward for diagnosis. Since the inception of the present scheme in 1917 more than 600,000 persons had attended the treatment centres, of whom about 120,000 were found to be suffering from venereal disease. Since 1920 there had been a steady decline in the total numbers of new cases of infection dealt with at the centres. In 1924 there were only 22,010 new cases of syphilis as compared with 42,805 in 1920, and 31,272 cases of gonorrhœa, compared with 40,280 in 1920. The number of attendances at the clinics during 1924, however, reached a total of about 1,650,000, the highest on record, which meant that the average number of attendances per case had increased and that the importance of persevering in treatment was increasingly recognised. The percentage of cases which ceased attendance at the clinics before their course of treatment was complete had fallen from 47 in 1921 to 39 in 1924. There seemed to have been a definite diminution in syphilis and gonorrhœa during the past five years. The expenditure of local authorities on schemes for diagnosis and treatment had fallen from £450,000 in 1921–22 to £388,000 in 1923–24, and a further drop was expected this year. The saving was due to improved arrangements at the centres and more economical working. Turning to the subject of notification, Sir Kingsley Wood said that so far as experience had been obtained it had not shown that its advantages would outweigh its disadvantages. One city, Bradford, had an Act which required the notification of certain classes of cases, but did not empower the local authority to take any action on receipt of the information. In Canada and Australia legislation was in force setting up conditional notification. In wishing the conference Godspeed he said that one of the tragedies of the present situation in this country was that in 1924 over 5000 persons under 17 years of age had to be dealt with for the first time.

Colonel L. W. Harrison, of the Ministry of Health, said that the report of the Royal Commission in 1916 had stated that the number of syphilitics could not be less than 10 per cent. of the population in the large cities, and his own investigations had led him to suppose that the incidence of gonococcal infection was about three times that of syphilitic. It was estimated that the annual number of venereal disease infections before 1916 was not less than 200,000, but since then there had been provision of efficient treatment and of education. He believed that a very high proportion of cases of syphilis reported themselves, but not so high a proportion of cases of gonorrhœa. In England, as in all other countries where there were good facilities for treatment available, there appeared to be a very remarkable reduction in the incidence of syphilis; but he did not think that any very great reduction in gonorrhœa could yet be expected. The treatment was harder, and to stop the infectivity of the patient was harder; the fight against this disease would be long and difficult. The cost of the present schemes of treatment was about 2½*d.* per head of the population per annum, and a minimal estimate of the ultimate saving showed how economical this was for the nation. A manufacturing concern in Virginia had installed a free venereal clinic for its employees at a cost of $6000 for the first year and had later reported that labour efficiency had increased by one-third, which gave a return of $40,000 yearly for the investment. After pointing out the advantages of clinics being open all day, especially for women with gonorrhœa, who are preferably treated daily by a nurse, Colonel Harrison referred to the necessity of preventing ophthalmia neonatorum and congenital syphilis by taking forethought. He wished to awaken all branches of the medical profession to the fact that congenital syphilis was a horror, and its incidence a reproach. The instruction of medical students gave far too little knowledge of early venereal disease. The curriculum need not be further loaded. Was it not better to spend a few hours learning to treat syphilis in its first stages than to devote many to the pathology, signs, symptoms, and prognosis of the horrible consequences of early neglect?

Progress in the Dominions.

The position throughout the Dominions was then reviewed. Dr. C. L. Park (Australia) pointed out that venereal disease was now being looked upon as a general public health problem. Dr. B. Colquhoun drew attention to the fact that not the least of the evils of the war had been the loosening of social behaviour, and that such institutions as Boy Scouts, Girl Guides, and the Junior Red Cross, and open-air schools for young children, would give a much better chance to the coming generation.

Dr. J. A. Mitchell, Secretary for Public Health for South Africa, said that there was an extraordinary tendency to exaggerate the prevalence of disease amongst natives. In South Africa not more than 2 per cent. of all races had venereal disease, and since inter-tribal wars had been stopped and famines were prevented or checked, the real racial danger was the destruction not of the natives, but of the white population, which might be elbowed out, swamped, or absorbed. In a paper laid before the conference by Lieut.-Colonel Pargett Adams, the incidence and manifestations of venereal disease amongst natives were described. Syphilis was a far less formidable complaint in South African Abantu races than in white or partly coloured people.

In a paper by Dr. Gordon Bates (Canada) it was insisted that the Venereal Disease Acts were of real value from the point of view of the protection of the family. Canada was going forward on the lines of a broad social programme. Mr. John Huxham (Queensland) advocated the interchange of medical certificates between persons wishing to contract marriage. Dr. Draper Bishop (Guernsey) said that as a result of legislation social abuses had been enormously reduced. Dr. David Lees criticised Sir Kingsley Wood as regards economy. If it had been possible to save money let them use the money saved for the attack on gonorrhœa. As regards the problem of large or small centres, he protested against the tendency to establish ad hoc clinics instead of clinics inside the hospitals. A point that was essential was to get a keen medical staff, but it was questionable how long this would be possible under the present rates of payment; he could not advise able young men to go into the work of venereal disease under present rates of pay, and suggested that the Ministry of Health should make part-time appointments, so that the general public, which was not getting as good treatment as hospital patients, could benefit from their experience. Dr. J. H. Sequeira said that the London Hospital had no difficulty in getting expectant mothers into the clinics, because there was no attempt to label the departments as ad hoc departments. Mr. H. Wansey Bayly claimed that self-disinfection, which was in practice in Portsmouth, had resulted in bringing the Portsmouth figures for disinfection considerably below those of Birmingham, a decrease having been seen in Portsmouth, whereas there had been an increase in Birmingham.

Colonies, Protectorates, and Mandated Territories.

The problem of venereal disease in these countries was discussed at the final session of the Congress on Wednesday, Oct. 7th. Papers were submitted by delegates from Barbados, Nigeria, Ceylon, Fiji, Nyasaland, and Palestine.

Dr. A. M. De Silva said that in Ceylon the Government and the public are vigorously attempting to deal with the prevention and cure of venereal disease and that the number of sufferers shows signs of decreasing. In Colombo all houses of ill-fame have been closed; the police strictly enforce regulations against public solicitation; free treatment clinics are available at all the large hospitals, and specially trained doctors travel from village to village. There is no difficulty in getting the people to come for treatment.

Dr. P. T. Harper said that hitherto the inhabitants of Fiji have been immune to syphilis owing to the magical rite of inoculation with yaws practised on children after the eruption of their first teeth. A small percentage of Fijians grow up without having contracted yaws, and the proportion is increasing owing to the influence of the Government and missions. A number of them is also being cured of yaws, and it may be confidently expected that in future syphilis will appear amongst the Fijians and spread, as gonorrhœa is now slowly spreading amongst them. The abolition of indentured labour has lessened venereal disease amongst the Indians. Free treatment is provided at numerous Government institutions for all Fijians, Indians, and necessitous persons, and there are arrangements for treating all infected seamen arriving at the islands.

Nyasaland, Palestine, and Jamaica.

Dr. Meredith Sanderson, describing the conditions in Nyasaland, said that leprosy, plague, trypanosomiasis, bilharziasis, ankylostomiasis, and venereal disease are all endemic. The last can only be dealt with as part of an organised effort to improve the public health as a whole. The problem is political rather than medical; the Pax Britannica is apt to result in boredom, and the adage about Satan and idle hands is very true in Central Africa. Tribes which were moral under tribal rule have become less moral; the marriage tie has been weakened and prostitution is on the increase. Dr. Sanderson considers that tribal discipline may be improved; that the marriage tie should be regularised by civil process; that village schools should give instruction in hygiene; and that a native medical service should gradually be built up.

Dr. J. W. P. Harkness said that syphilis amongst the rural population in Palestine is mild in type and is spread by social rather than sexual intercourse; but its effect on birth-rate and child life is as serious as in Europe. The people are not sexually promiscuous and they marry early; but domestic hygiene is bad. The health department is capable of treating about 2000 patients a year, and instruction in hygiene is given to teachers in Government schools. Education is a very laborious process, and suitable pictorial representations of disease are extremely hard to devise. In 1924 the Supreme Moslem Council consulted the health department as to the practicability of a religious edict forbidding the marriage of Moslems who do not submit medical certificates of freedom from venereal disease, and there is a possibility of this being tried in one district. Gonorrhœa is not unduly prevalent in Palestine, though there are epidemics of gonorrhœal ophthalmia. The administration has never countenanced the system of registration and compulsory examination of prostitutes, and the number of brothels in Jerusalem and at the ports is less than in 1918. Syphilis and gonorrhœa are notifiable but not by any means always notified. The general situation is promising.

The Bishop of Jamaica said that the population of Jamaica was about 9 millions, of whom some 15,000 were Europeans. The percentage of persons suffering from venereal disease has been estimated at its lowest as 40 and at its highest as 80. Until recent years the Government paid very little attention to the problem. In the past six years a committee, of which the Bishop is chairman, has been at work, and it has made representations to the Government, broadcast literature, and instituted courses of lectures. All this has made a considerable stir amongst the people. The Bishop said that adequate sums of money are required to deal with the situation effectively. If there is to be success in the great campaign throughout the Empire it must be by legislators, medical men, and ministers of religion working together.

Mrs. C. Neville Rolfe (secretary-general to the Congress) said that the outstanding need is for assistance to the medical services in the Colonies.

In winding up the conference Colonel Harrison pointed out that expenditure on venereal disease is a paying proposition.

WORKSHOPS FOR THE TUBERCULOUS.

HEALTH WEEK CONFERENCE.

A CONFERENCE in connexion with Health Week was held at Holborn Town Hall on Oct. 7th with the object of making known and popularising workshops for tuberculous patients in the borough. In opening the proceedings the Mayor (Councillor H. W. Coleman) said that Holborn was able to demonstrate the possibility of such workshops by the success of the Spero factory in Hatton Garden.

Dr. C. H. Walmisley, chairman of the Public Health Committee of the London County Council, described the difficulties which faced the local authority which tackled the tuberculosis problem. It was very important that notification should be received early. Sanatorium treatment was often difficult because the financial position of the patient made him anxious, and his benefit under the National Health Insurance was for a limited time. At the sanatoria the patient must attain to six or eight hours' work a day; to do only four or six hours was unsatisfactory because he might then go home and try to do eight, which would lead to relapse. This was where the system of workshops came in. The tuberculous patient who did only six hours' work a day was either paid for half a day's work, in which case his family could not live, or else he was paid for a full day's work, when the goods he produced could not be sold at an economic price. He suggested that surplus funds under the National Insurance Act should be devoted to subsidising workshops. One of the worst possible ways of treating tuberculosis was to take a man away from a sanatorium and let him sink in his way of life. Even able-bodied men had great difficulty in finding work to-day. A workshop, he said, was quite different from a colony, where a family was taken from its surroundings and put down in a new environment. The workshop allowed the man to live at home and go to work under conditions suitable to his disease.

Funds and Subsidies.

Dr. Otto May, of the Prudential Assurance Company, said that early deaths from tuberculosis accounted for a heavy item in claims against insurance funds, and that the company were interested in any way of preventing them. The suggestion that they should bear the whole cost of subsidising workshops had the merit of simplicity, but although they might be induced to help in suitable schemes they had, in fact, very little surplus money. The approved societies, however, had large surplus funds under the Insurance Act, and there was no reason why they should not allocate some of them to the provision of tuberculosis workshops.

Dr. Haden Guest, speaking as a Member of Parliament rather than a doctor, said that he believed that the remedy of the great social problems did not lie with medical science but in an alteration of social conditions. We were preserving in our cities—in London—manufactories of tuberculosis. Prevention was not a question of serums but of hygienic surroundings. The real difficulty in

getting early notification was that the workman did not want to go on the sick list and lose his wages. It could never be obtained until there was some means provided of supporting such a man, and this was one of the key-ways of dealing with the situation. At present many cases escaped notification altogether. He would like to see workshops provided in the early stages, so that the men could get better before they got bad, and he agreed that workshops were useful for men who were recovering. Subsidy for this work would be an altogether useful and commendable expenditure which would really bring in dividends. He thought that trade unions might be asked to coöperate as health propagandists, and that they could do useful work. He had himself been a member of the L.C.C. Public Health Committee, and considered that although it was doing valuable work it should do three times as much. The present tuberculosis figures ought to be halved before there was any cause for satisfaction.

Dr. Harry Campbell said that many patients who had active tuberculosis were capable of light work. In workshops they would have medical care, congenial work, and new interests, and could be taught to avoid infecting others.

The Hatton Garden Workshop.

Dr. N. D. Bardswell said that the Spero leather factory was the first work centre of its kind to be established in London, and, so far as he knew, the first in the country. It had been opened in 1922 by the Central Fund for the Industrial Welfare of Tuberculous Persons, and the employment scheme consisted of three units—namely, the central office and showrooms at Denison House, Vauxhall Bridge-road; the specially arranged hygienic factory at Cross-street, Hatton Garden; and the training centre at King George V. Sanatorium, Godalming, whence employees for the factory were recruited. Dr. Bardswell described the conditions at Hatton Garden. The factory makes high-class fancy leather goods, such as purses, bags, and wallets, and sells them in the open market. The full complement of the factory is 23 men. At present there are 22 employees, of whom 11 are ex-Service men; five are married. The minimum rate of wages to trained men is 8¼*d.* per hour, or 30*s.* a week, which is the same rate as prevails in the Lord Roberts' workshops. On increased efficiency the rate is raised, and the wages of the trained men at present vary from 44*s.* to 30*s.* 3*d.* The men prefer payment per hour to piecework. Working hours are from 8 A.M. to 5.30 P.M., with one hour's interval for dinner and ten minutes for lunch; on Saturdays the factory closes at mid-day. Two weeks' holiday on full pay is allowed during the year. The workshop and business generally are managed by a committee of five members, one of whom is an employee of the factory nominated by his fellows, and a highly skilled leather worker is responsible for the routine work in the factory. The medical supervision of the employees is exercised by their usual medical attendants, in association with the tuberculosis officers of the various boroughs, whilst their social welfare and that of their dependants is looked after by a small informal committee. Owing to the relatively low wages that can be earned, financial difficulties continually call for attention. On the social side of its work, the Central Fund have found invaluable helpers in the British Red Cross, the Charity Organisation Society, the various borough care committees, and other social service organisations.

Results of the Experiment.

After three years' experience, continued Dr. Bardswell, the following conclusions had been reached. (1) The organisation of employment for tuberculous persons is a practical proposition; but the training of tuberculous persons for a skilled trade is not generally possible. Were the Central Fund to begin over again, they would not choose a skilled trade, such as leather work, but rather some trade demanding the minimum of training in which the output of workers could be assisted by the use of simple machinery. This lesson of the Fund's experience could not be too strongly emphasised. (2) Medically speaking, tuberculous persons working in a city factory under conditions such as can be seen in Hatton Garden do very well. The workers, all definite cases of pulmonary tuberculosis, and many of them serious cases, had maintained their health or improved, and as a means of after-care the success of the factory was fully proved. (3) On the important question of cost it was less easy to be dogmatic. The business was young, though growing, and had a long way to go before it could be considered established. To start a new business at a time of general commercial depression was very difficult; markets were shy and competition relentless. Added to this there was the handicap of employees whose output was lower and slower than that of their competitors. Before anything else, a factory for tuberculous persons needed a certain and constant sale for its products, and this should be the first consideration of the promoters of any scheme of employment. The rent of the premises at Hatton Garden was £150 a year; gas, heating, and cleaning cost £90. The cost of altering and equipping the factory had been £400, and the salary of the workshop manager was £350 per annum. Broadly speaking, the income from sales of goods at present covered the whole amount paid in wages to the employees and the cost of raw materials used in the factory. All other expenses, such as rent, taxes, insurance, wage of manager, office expenses, and assistance to the employees, had to be met from other sources, and these amounted to more than £1000 per annum. As everyone knew, a factory for the partially disabled must be subsidised; but it was surely a wise expenditure which maintained in health and work those who otherwise would be sick and without the means of work.

Agreement and Criticism.

Dr. G. Quin Lennane, medical officer of health for Battersea, welcomed the Holborn work as a pioneering experiment. Dr. H. de C. Woodcock said that the fact that this scheme had proved practically an economic success under present difficult conditions seemed an argument for making workshops for the tuberculous a national question.

Mr. F. Berliner (Finsbury) said that many skilled men were out of work, and in his opinion, by the subsidy of workshops, the wrong men were being put to the work. Those who could not compete commercially in one sphere should have the opportunity to work in another, and the influx of healthy men to the towns should be met by letting the tuberculous, for instance, go out into the country. There were 21 million acres available for afforestation, and there was light work, such as the care of nurseries and putting up netting and fences, which he thought suitable for the tuberculous. At Hatton Garden it had been found that the only way to carry on was to observe ordinary business hours, and even then the lack of speed of the workers was a serious handicap.

Councillor the Rev. H. Ross said that the mental and moral welfare of the men was important, and that they did not want to move from their homes and surroundings. He agreed that as many as possible should go on the land, but more workshops were needed.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION. The Association has arranged a course of instruction from November till May on similar lines to those of former years: (1) A series of demonstrations will be held each Wednesday afternoon commencing Nov. 4th. The programme includes medicine, surgery, obstetrics, and a number of special subjects. (2) Special courses in ophthalmology have been arranged by the staff of the Glasgow Eye Infirmary. Instruction in other special subjects will be arranged by other hospitals to meet the expressed desire of graduates. (3) A number of clinical assistantships are available in the wards or out-patient departments of various hospitals for periods of three months' tenure. The syllabus may be obtained from the Secretary of the Association, Dr. James Carslaw, 6, Woodside-crescent, Glasgow, C.3.

THE LANCET.

LONDON: SATURDAY, OCTOBER 17, 1925.

PHYSIOLOGY AND ORTHOPÆDICS.

THIS is the season for introductory and presidential addresses, and there is some risk that in the flood of October oratory the paper read by Mr. BLUNDELL BANKART before the Orthopædic Section of the Royal Society of Medicine on Oct. 6th may attract less notice than is demanded by its merits and the importance of its subject. Every surgeon ought to be familiar with the latest established facts concerning the physiology of muscular action, and in no specialty is such knowledge required more urgently than in that of orthopædic surgery. As Mr. BANKART very truly pointed out, "its ultimate aim is the restoration of function, so that those who profess to deal with disorders of bodily function must have some knowledge of the normal functions of the body." Advances in pure science are apt to remain unapplied in practice for a long time, and especially is this true of the science of physiology, which advances not often by leaps and bounds, but for the most part by many small creeping movements. It is very well then that there should be vigilant observers who bring the latest discoveries of the laboratory to the notice of the clinician. Even if, as in the case of recent experiments into the sympathetic innervation of voluntary muscles, improvement in practice does not necessarily follow, yet the discussions which arise around it ventilate the subject and tend to maintain and improve the liaison between the experimenter and the practitioner. It is some years since Prof. SHERRINGTON published an account of his work on the postural activity of muscle, and showed that although there is only one kind of striated muscle cell, there are two kinds of muscular action, one of which brings about movement, while the other resists or prevents it. This fact is of interest to all clinicians, but it is of special importance to orthopædic surgeons, not only in the treatment of spastic palsy, but in the treatment of errors of posture, which they may hope to correct not by the education of muscles, for they are the mere slaves of nerve-fibres and incapable of learning or being taught, but by educating the nervous mechanism. Whether the faulty posture affect a segment of a limb or the whole trunk and lower limbs, if it is due, as is so often the case, to a lack of tonic muscular action, its correction can only be hoped for as the result of improving the efficiency of the neuro-muscular mechanism which produces postural tone. It therefore follows that resistance exercises should be preferred, which call for the tonic contractions which resist movement and are more likely to produce good results than free voluntary movements.

Probably one reason why the drill sergeant has been so much more successful than the civilian physiotherapist in producing changes of trunk posture, is that he relies more on making the recruit resist tendencies to sag and slouch than on active movements which are supposed, probably erroneously, to improve posture. But as postural tone is concerned in the regulation of all voluntary muscular movements, the performance of these latter must have some, if only a small, effect on the development of the former. All who are concerned with physiology—among whom at least all orthopædic surgeons should be included—were interested in the posthumous publication [1] of two lectures by that brilliant Australian physiologist Dr. J. I. HUNTER on the Sympathetic Innervation of Striated Muscle, in which he claimed to have shown as the result of experiment that the postural tone of SHERRINGTON was really composed of two kinds of action which he called plastic tone and contractile tone respectively, and further, that every striated muscle consisted of two kinds of fibres, of which one was innervated by sympathetic nerve-fibres and the other by the ordinary medullated nerves of the cerebro-spinal system. Dr. N. B. ROYLE went further and applied [2] the lessons learned from HUNTER'S experiments to the surgical treatment of spastic paralysis by sympathetic ramisection. This was less than a year ago when the new discovery was hailed with enthusiasm as a great advance in our knowledge of neuro-muscular physiology, and the operation based upon it was credited with great results. Unfortunately, Dr. HUNTER was cut off in his youth and before he had an opportunity of profiting by the criticisms to which his new observations and theories were speedily subjected. Had he lived he would doubtless have profited by them and have been the author of discoveries which would have stood the test of time and conduced to his lasting fame. There used to be a cynical saying to the effect that the average life of a new physiological fact was three years. To judge from the review of the whole subject by F. M. R. WALSHE, which appeared in the September number of *Medical Science*, the life of HUNTER'S new facts is to be measured in months not in years. Dr. WALSHE concludes by saying that the analysis of postural tone into two separate components has proved to be artificial, that, in short, postural tone cannot be so split up and that sympathetic motor innervation of striated muscle has not yet been satisfactorily established. As regards the operation of sympathetic ramisection its results have been most disappointing, even in the two cases chosen by ROYLE out of 25, and operated upon by him in Boston.

To these experiences of the results of sympathetic ramisection which are referred to by Dr. WALSHE there may be added those of Mr. BANKART, who stated that he had performed this operation for spastic palsy ten times without any beneficial result. As he is known as a most skilful operator and as one who has paid special attention to the operative treatment of Little's disease, it is not likely that much more will be heard of this method of treatment. Mr. BANKART also referred to the interesting but rather baffling question of muscular atrophy after injuries to bones and joints, which is especially noticeable in the quadriceps after fractures of the patella or of the lower end of the femur, and pointed out that it was the postural tone of the muscle that was most conspicuously lacking, and that while the power of voluntary contraction could be increased by active movement, massage and electric methods, we could only hope to improve the postural tone by proceedings which tend to stretch the muscle; in other words, by resistance exercises. Flexor muscles are not postural, and therefore those who hope that the transplanted hamstrings will be capable of controlling the knee-joint are doomed to disappointment, for the chief function of the quadriceps is not to extend the knee but to prevent it from bending, in which function the postural tone is alone concerned. Several other questions concerned with muscular activity which interest the orthopædic surgeon were lightly

[1] Brit. Med. Jour., 1925, i., 197, 251.
[2] Brain, 1924, xlvii., 275.

touched upon in this address, such as "What is cramp?" and the relations between intestinal stasis due to faulty posture, and arthritis. Mr. BANKART claimed, and we think made good his claim, that of all branches of surgery orthopædic surgery is the most advanced, for it has recognised, as all surgeons should, the importance of reckoning with the progress of physiological knowledge and applying its lessons on treatment. The physiology of muscular movement is but one instance of the fundamental relationship between physiology and orthopædic surgery.

ANOMALOUS APPETITES.

PERVERTED appetites are well known if they are not very common. People and animals eat earth, hair, dung, cinders, curious pickles, and all sorts of things because they want to, and indeed in some cases because they feel they must. Normal appetite is a pretty good indication of normal need as we are now coming to learn, and it will be of much interest to discover the rationale of some of the fantastic cravings which are known. The last number of *Physiological Reviews* (1925, v., 336) contains a good account by Dr. H. H. GREEN of one case of which the explanation is apparently ascertained. Osteophagia in cattle in South Africa was mentioned by the traveller LE VAILLANT as far back as 1785. He noticed that the cattle eagerly searched for the bones left by his dogs and chewed them with relish, and he attributed the habit to the poorness of the grass on which the animals had been fed.

In recent times the habit has been so widely spread that in its milder phases it has come to be looked upon as almost natural. The least degree of craving is shown by a taste for sweet bleached bones alone; greater degrees by a readiness to gnaw at bones in increasing stages of foulness and putrefaction until the stage is reached at which the animal will devour any miscellaneous rubbish that it can get at. With this dirty food it is liable to pick up a toxigenic anaerobic bacillus (*Parabotulinus bovis*) which gives rise to the serious and fatal poisoning known as lamsiekte, and it is mainly the losses due to this which have concentrated attention on the osteophagia which always precedes it and which by itself causes noticeable deterioration of growth, milk-yield, and general condition. THEILER and his co-workers have shown fairly conclusively that osteophagia is caused by a deficiency of phosphorus in the diet. The administration of any phosphorus compound which can be utilised by the animals will cure it within a few weeks—bran, bone-meal, calcium phosphate, sodium phosphate, and phosphoric acid are all effective. It does not, of course, follow, because ague can be cured by bark, that malaria is caused by the absence of quinine, but in the present instance the indication from therapeutics is corroborated by many details of the relation of osteophagia to locality and season. Oxen, too, require the smallest ration of bone-meal to keep the craving under, growing stock perhaps twice as much, and milking cows still more. It seems, then, that osteophagia is a highly intelligent response to phosphorus deficiency, though the animals have not quite enough chemical knowledge to jump at precipitated calcium phosphate towards which cravers show no inclination. The craving in its more exaggerated form will also lead cattle to eat any odd rubbish whether it is rich in phosphorus or not, and in so doing they will often get killed by botulism: *quem vult deus perdere prius dementat.*

These curious facts suggest reflection on two lines. In the first place, as to how far similar "perversions" of appetite may have similar explanations. Are hair-eating and feather-eating expressions of a need for something in keratin, possibly the cystine? N. ZUNTZ found that he could increase the wool of sheep by feeding them with partially hydrolysed keratin, and one of his colleagues who took the preparation had to shave twice a day instead of once. Is coprophagia an attempt to get something which has been made by bacterial action in the bowel?—it has often been noticed in rats fed on vitamin-deficient diets. In the second place, as to how far it is phosphorus that is effective in restricting the quantity of live matter on the world. It is not an abundant element and most of what is in sight is in plants and animals; in the sea, at any rate, there is only just enough to go round—in other words, it becomes a limiting factor. Some wheat lands in America are useless without the addition of phosphate, and as Dr. GREEN points out it seems likely that the "cripples" of stock in New Zealand, Australia, and Texas is also aphosphorosis. Man, at any rate, has found it worth while—and not a little profitable—to go far afield to fetch phosphorus. The deposits in Christmas Island are commemorated in the Irvine Chair of Bacteriology in the University of Edinburgh.

THE VOLUNTARY HOSPITALS OF GREAT BRITAIN.

THERE are in Great Britain 911 voluntary hospitals, with 58,551 available beds, and of these 793 hospitals with 45,091 beds lie outside the metropolitan area, and are the subject of a report[1] to the Joint Red Cross by Dr. F. N. K. Menzies, which is issued this week. There has never been any year, writes Dr. Menzies, in which all the voluntary hospitals paid their way, but, taking the extra-London hospitals as a group, there was a balance to the good for the year 1924 of £453,000 in England and Wales and £696,000 in Scotland, while 61 per cent. of all the hospitals did, in fact, show a surplus of ordinary income over ordinary expenditure. Nor has this favourable balance-sheet been obtained at the cost of diminished activity, for there has been a steady increase in the number both of in-patients and out-patients treated, the total number of new in-patients during the year reaching the figure of 614,069, and that of new out-patients the enormous total of 2,496,485. In their report to the Minister of Health last year the Voluntary Hospitals Commission put the total additional beds required for England and Wales at 10,000, making at a bare cost of £400 per bed a minimum capital expenditure of £4,000,000. Dr. Menzies regards these two figures as an underestimate of actual requirements and sets himself to answer the question: Can the voluntary hospitals themselves within the next five years provide and maintain without State aid the additional 10,000 beds said to be required? He finds that during the last four years an addition of 4681 beds has actually been made to the voluntary hospitals of England and Wales alone, or an average increase of over 1100 beds per annum, so that the need would be supplied if only the hospitals found themselves able to double the normal rate of increase of their bed accommodation during the next five years. Obviously, as Sir Arthur Stanley points out in his foreword, there are great inequalities in the need, and such a newly populated district as Becontree, where hospital beds cannot be obtained by extension of an already existing institution—for there is nothing to extend—must receive financial help from the State. It will be remembered that the Hospitals Commission definitely asked for a capital grant of £2,000,000 for building purposes, but Dr. Menzies

[1] Voluntary Hospitals in Great Britain, excluding London. Sixth Annual Report, for the Year 1924. By F. N. K. Menzies, M.D., F.R.C.P.E., D.P.H., Director of Hospital Services, Joint Council of the Order of St. John and the British Red Cross Society. With a Foreword by the Hon. Sir Arthur Stanley, Chairman of the Joint Council. 19, Berkeley-st., London. 1s. 6d.

carefully considers the alternative ways in which the necessary funds might be made forthcoming. Closer coöperation between hospitals, so desirable in theory, has proved unattainable in practice, and founders on one of our invincible national traits. Exemption from local rate charges, also unlikely of attainment, can hardly be cogently urged when hospitals, like other ratepayers, benefit so greatly from certain municipal services. On the other hand, exemption from legacy duty would benefit the hospitals to the extent of £150,000 per annum, and make such a difference in the hospital budget that no further suggestion of "going on" the rates or the Exchequer, as Sir Arthur Stanley puts it, would need to be entertained. Dr. Menzies, however, believes himself that the Treasury, given the choice, would prefer a lump sum contribution to such a permanent loss of revenue. The final alternative suggested in the report, which does not exclude any other method of improving finance, would be the establishment of a Central Fund on somewhat similar lines to those of King Edward's Fund for London. The proposal, rejected at Sheffield two years ago, has yet much to commend it, although it may be years before such a fund could grow to any considerable dimensions, and time is of the essence of the problem. In one way or another the need for additional hospital accommodation, which in certain areas is very acute, must be met, and careful study of Dr. Menzies's report will be of material help to those who are concerned to raise the money. The report this year also contains a series of valuable essays on various aspects of hospital administration, one of which we print on another page. In this essay Mr. N. Bishop Harman sets out the claim for the general hospital as the ideal unit of organisation. There is, he argues, no justification for separate hospitals for disease of the nose, throat, skin, heart, rectum, urinary organs, for cancer cases, or for radiological treatment. Special hospitals run the risk of one-sided growth through loss of contact with general medicine and surgery or from failure to know what other branches of medicine are doing. The issue is one which needs to be clearly thought out in contemplating the addition of hospital beds in the near future.

CHIROPRACTIC.

THE first essential in the practice of medicine is the honest attempt to make an accurate diagnosis. Licensing bodies throughout the world prescribe a prolonged course of study, after a stiff entrance examination, with a view to producing a certain standard of diagnostic ability amongst those who are to have the care of the sick. In his presidential address last Monday to the Medical Society of London (summarised on page 807), Sir Holburt Waring ruthlessly laid bare the exiguous curriculum of many of the osteopathic and chiropractic schools in America. It would appear that many of these schools make no condition of entrance save the ability to read and write; they prescribe a mere 18 months of study prior to granting a doctorate of osteopathy or of chiropractic. The type of manipulator thus produced preaches the utterly unscientific doctrine of displacement of vertebræ with direct pressure on nerves and vessels as a result. There is a more enlightened school which describes the osteopathic lesion as an immobilisation of the joint outside its position of normal movement, and which attributes the resulting ills to irritation of the sympathetic. The growth of these two schools, whilst undeniable, need give rise to no serious anxiety unless there is failure on the part of the medical curriculum itself to recognise the value of manipulation in the treatment of pain, local or referred. We know of only one general hospital at which a class of students is taught the technique of joint manipulation, and attendance at this class is not compulsory. In cases in which manipulation offers a chance of relief this can now be obtained only at the hands of a small group of qualified practitioners, and relief, therefore, tends to be sought in unqualified channels.

Annotations.

"Ne quid nimis."

RESEARCH IN THE MEDICAL SERVICES.

OUR issue this week opens with an address, entitled as above, and delivered before the appropriate Section of the Royal Society of Medicine by Sir William Leishman on Monday last. The Director-General, A.M.S., points with confidence to the opportunities enjoyed by the officers in his and in the sister Services, for contributing to the medical wisdom of the world both by coöperation and by individual labour. His words in the latter respect, with regard to the planning of work, are wholly admirable; especially does he inculcate that self-criticism which will go far to prevent premature enunciation of theories, a proceeding which is unfortunately followed by personal disappointment or resentment for the would-be discoverer, while it is woefully embarrassing for all workers along the same lines. Sir William Leishman's counsel is designed to create a fine individual worker who shall contribute to collective research. Alterations in the conditions of service in the R.A.M.C., which took effect under Sir John Goodwin some five or six years ago, with the active coöperation of Sir William Horrocks and the present Director-General, have made it possible for sound scientific workers to attain to positions in the Service of proper trust and emolument, so that the great scope for original labour in tropical and preventive medicine offered by the sphere of duty can be properly taken advantage of. The reform is bearing fruit now, while the urge of scientific enterprise has manifested itself also in the Navy and the Air Force. In all the Services there must arise difficulties due to isolation, to change of station, and to the daily pressure of routine, but in all of them there is a spirit abroad surmounting the obstacles, and that it is the spirit rather than the provision of material appurtenances which counts is sufficiently shown by past records. The zoological-pathological work of Manson and Ross was accomplished largely while carrying on their arduous duties, and with a similar disability Sir Leonard Rogers found time to reverse the figures of cholera mortality. Sir David Bruce, with many patients but no laboratory save what he could construct for himself, found the germ of Malta fever and initiated a campaign which added a battalion to the effective strength of the Army; after which he, with the devoted assistance of his wife, went on to discover the relations of the tsetse-fly to sleeping sickness. Sir William Leishman himself, while engaged in the duties of his office, discovered the cause of kala-azar, and Sir Percy Bassett-Smith, as a naval officer, showed the Navy how to escape the menace of scurvy. Last week we published a paper read to the International Congress of Aerial Navigation at Brussels by Group Captain Martin Flack, in which the relation of stable nervous control to flying efficiency was fully discussed, and the elaborate work there indicated, which has to be undertaken for the assessment of a candidate for flying duties, demonstrates the high range of scientific accomplishment to which officers in the Air Force Medical Service must to-day attain if they are to discharge their duties. Medicine may look confidently to the Services for competent and zealous recruits to medical research.

THE TEACHING OF HEALTH.

THE Royal Sanitary Institute was recently responsible for a National Health Week, when nearly 400 cities and towns of the United Kingdom joined in the campaign for rousing a sense of personal responsibility for health. Such a health week has usually as one of its attractions popular lectures on health matters, and there seems to be an increasing demand for public health propaganda by the spoken word. In view of

this it seems important that the principles underlying the health talk should be fully understood, for there is a certain amount of danger attached to faulty method. It is interesting to note that education in general relies largely on the spoken word, and that despite the high level attained by modern advertising business still has to depend to a large extent upon the glib salesman, while health propaganda is still mostly a matter of poster, pamphlet, or picture, to the neglect of the most valuable medium afforded by speech. The National Tuberculosis Association of America has realised some of the difficulties attendant on the use of the spoken word, and in a recent little book [1] Dr. Iago Galdston has analysed these difficulties and set down certain rules for the guidance of the health teacher. The speaker in the first place should be carefully chosen and diligently trained, and it must be borne in mind that one who can effectively lecture to a group of city merchants may fail lamentably before a class of school-children. The choice of vocabulary must be strictly made with the elimination of all technical words, and a pleasantly carrying voice is as important as a forceful personality. The subject matter of health talks presents more difficulties than are at first apparent; the available information must be abstracted, defined, and arranged in such a manner that it can be adapted to the age, social, or sex group for which it is intended. It is to be remembered that in these days of the universal newspaper most audiences will have a smattering of recent information on health matters. A lecturer on cancer, for example, will be expected to give an account in simple language of any recent discoveries in this field and he will lose some of the effect of his appeal if this be omitted. Health teaching is not the same as health preaching, and the untrained lay speaker who recites a set of rules will, in general, prove ineffective, for members of the average audience demand to be told the reasons why they should change their ways and do this and avoid that. The audience to which a health talk is being given must always be carefully considered, and the set lecture delivered alike to factory-hands, school-teachers, and working-class mothers is likely to be of less value than if it were skilfully adapted to suit the situation. The set lecture written out in full is also to be condemned; with the main points before him the successful lecturer will develop his theme according to immediate circumstances. The long talk and the series of talks will differ considerably from the short talk, and here again skilful adaptation will be necessary for success. The question of the adjuncts of a lecture have also to be considered; in general the distribution of pamphlets should take place after the health talk, and other illustrative material such as charts, slides, and films must be chosen to harmonise with the subject, both in substance and in treatment. When slides are used the lecturer should be careful to speak *with* the pictures rather than *about* them, for this avoids the obvious handicap of a rapidly shifting attention on the part of the audience. When films are used brief introductory remarks and then the picture, followed by some 10 or 15 minutes' talk emphasising certain points, will be found the best plan. Object talks, including blackboard drawings, have certain uses, but here, even more than elsewhere, the lecturer will need special training. Dr. Galdston's little book includes an account of how a broadcasted health talk should be arranged. The necessity of a striking introduction is obvious, and a talk in clear-cut, short, simple sentences will enable anyone tuning in during the middle of the talk to understand what it is about. Broadcasting opens up a new avenue for the effective promotion of public health, but certain points in the technique require close attention. Some of the suggestions made here may seem trite and unnecessary, but with the new powers under the Public Health Act enabling local authorities to spend money on health propaganda there is some danger that the teaching of health may be looked upon as a simple off-duty occupation for junior officials in the health departments. The effective use of the spoken word in health propaganda has undoubted value, but care must be taken to master some of the esssential details of what is certainly a highly specialised art.

[1] Health Speaker's Handbook. New York: National Tuberculosis Association, 370, Seventh-avenue. 1925.

PERSPECTIVE IN X RAY INTERPRETATION.

Dr. William Cotton has endeavoured to apply the laws of perspective to the art of radiography, and he gave a demonstration on the subject at the recent International Congress of Radiology, the substance of which he has now reprinted. By these laws we are enabled to represent accurately on a plane the appearance of triply extended objects as seen from a point known as the centre of vision. The author considers that in radiography the focal spot of the X ray tube is the centre of vision, and in order to obtain a correct interpretation of a radiogram the observer must stand in the same position relative to the film as the focal spot when the exposure was made. If this position is adopted, then by the same laws of perspective the view of a subject seen on the fluorescent screen is a false or reverse one. This picture, however, is the only one possible in existing radiographic methods. In view of the valuable information which the fluorescent screen reveals, it would appear desirable to adopt methods for examining radiographs which give the same picture of a subject as seen on a screen. By the same picture is meant that the parts of the radiogram appear in the same positions relative to the observer as they would appear on a fluorescent screen. An attempt to obtain this view is complicated by the extensive use of both positive and negative radiograms, but the difficulty is removed by marking the side of the film placed next the subject during exposure. When the film is viewed through this side a negative picture is seen if the above convention is adopted. The positive, corresponding to the fluorescent view, is the mirror image of the former and is obtained by viewing the film through the unmarked side.

Owing to the local nature of many radiograms, the observer has not the advantage as in photography of knowing when the image is erect, and it is usual to make some mark on the film, the position of which relative to the subject is known. In the picture seen on a fluorescent screen those parts of the subject nearer the observer are more sharply defined than those more remote, and in this respect the screen picture corresponds to the photograph. On the other hand, the parts of the subject further from the screen are magnified, whereas in the photograph more remote parts appear diminished in size. This distortion observed on the screen and radiogram is obviously due to the use of a cone of illumination, part of which is transmitted through the subject to the film and is independent of the position of the observer. For this reason, therefore, it is not to be expected that a radiogram will furnish directly accurate data concerning the relative dimensions of the different parts it portrays. However, by placing the affected part as near as possible to the fluorescent screen a truer idea of its dimensions may be obtained. To ascertain the position of a foreign body, two radiograms are taken by the usual stereoscopic method. Following the above convention the picture obtained when the X ray tube is moved to the right may be termed the right-eye picture and that for the corresponding shift to the left, the left-eye picture. Correct relief can only be obtained from a stereoscopic pair when the right-eye views the right-eye radiogram and the left eye views simultaneously the left-eye picture. The methods by which the two pictures are superposed may be divided into two classes. In the first, of which Brewster's lenticular stereoscope is an example, each eye views its appropriate picture or its enlarged image. In the second, right and left eyes view mirrored images, which correspond respectively to right and left-eye pictures. The Wheatstone stereoscope is of this type and it is

clear that to obtain correct relief, from the point of view of the fluorescent screen, the right-eye view must be placed on the observer's right hand and the left-eye view on his left. Both views must be so placed that the sides of the films, which were originally in contact with the subject, face the observer.

The application of the principles of perspective to radiography, as suggested by Dr. Cotton, is useful in that it stresses the importance of adopting systematically the same position relative to all radiograms. It is in his choice of a position corresponding to the focal spot that we differ from Dr. Cotton. This position leads to a picture which is the reverse of that seen on the fluorescent screen, and thereby introduces a complication which is avoided in the method of examination outlined above.

THE RELIEF OF LEEDS UNIVERSITY.

THOUGH certain authorities have doubted whether stone walls a prison make, and all have agreed that they do not make a university, it cannot be denied that stone walls are an important predisposing cause of both types of institution. Scattered wooden buildings make a poor prison and are inappropriate to a seat of learning. The rapid growth of Leeds University has made it necessary to carry on much of its work in temporary structures and transformed dwelling-houses; but in the course of time such conditions have become increasingly irksome, and the University is rightly pleading for relief. Present conditions are hardly tolerable, and expansion is impossible until new and larger buildings can be put up. The occasion of the appeal is timely; the coming of age of the University coincides with the jubilee of the Yorkshire College of Science, which was one of the three bodies whence it sprang. Of the many factors which brought this College into being the most important were the increasing public appreciation of the value of education, and especially of scientific and technical education, and the growth of the mechanics' institutes. The motives of the promoters were utilitarian; they wanted to increase industrial prosperity, but even at the inauguration there were those who took a wider view. On this occasion Dr. Lyon Playfair said:

> "The object of technical education, even in a technical school, is not to teach men how to use spinning jennies or steam hammers, but it is to give a cultured intelligence which may be applied to work in life, whatever that may be . . . The ultimate effect of this may be that you may evolve a wider and more comprehensive college for higher education."

It is said that when the College opened its doors in 1874 only one student, a coal miner, appeared on the first day, and that two more days elapsed before he was joined by a second; but the three original professors were Sir Arthur Rücker, Sir Edward Thorpe, and Prof. Alexander Green (all of whom became Fellows of the Royal Society), and the wisdom of choosing such men soon bore fruit in the success of their undertaking. It was not long before they came to the conclusion that their efforts could not attain a maximum of usefulness until the curriculum was expanded to include literary study, and in 1878 this change was made and the words "of Science" were deleted from the name of the Yorkshire College. About this time the Leeds School of Medicine, which had been in existence for nearly 50 years and had achieved something of a reputation, began to wish for university status, and it joined forces with the Yorkshire College in 1884 in the hope that the joint college would be admitted to the Victoria University. In 1887 the hope was realised, and Yorkshire College joined Owens College and University College, Liverpool, in a federation. In 1903 this federation was dissolved, and in 1904 a Royal Charter made Leeds a University. It is hardly necessary to describe the fortune of the venture. The academic staff has grown to include 268 persons; there are some 1700 men and women students, 320 of whom live in University hostels; and there are 42 departments of study grouped in the four Faculties of Arts, Science, Technology, and Medicine. Such an institution as this can do invaluable work for its county and its country, and yet, unlike other universities, it has hardly received the financial support which its services deserve; and although ends just meet on the present revenue of £173,000 per annum (33·4 per cent. of which is from Government grants and 17·2 per cent. from local education authorities), a special effort is needed if the University is to be freed from its present cramping and expensive circumstances. In our correspondence columns we publish an appeal for the medical school, a school which is associated with the names of men, living and dead, who have been leaders of our science. It will be regrettable if appeals do not meet with a worthy response.

I-EM-HETEP.

THE medallion which we reproduce was presented on Oct. 8th to the Reading Pathological Society by Sir Stewart Abram, an ex-president of the Society, to be the President's jewel or badge, and is of interest since, instead of the somewhat hackneyed figure of the Greek god Æsculapius, it represents the Egyptian Deity of Medicine, I-em-hetep or Imhotep, whose name signifies "he who cometh in peace." This famous Egyptian lived about 2900 B.C., and was a learned and many-sided man. He was Prime Minister to a Pharaoh of the Third Dynasty named Zoser. Further, he was a distinguished architect, and built the earliest pyramid known to history, the Step Pyramid of Sakkarah. Above all, however, he was noted as a physician, and he so impressed his fellow-countrymen with his skill in the healing art that he was eventually acknowledged throughout Egypt as the Deity of Medicine. In his honour temples were erected in various parts of the country, and to them flocked patients from far and wide. Many miraculous cures are reputed to have taken place at his shrines.

The jewel presented by Sir Stewart Abram consists of a pendant in hand-chiselled gold and enamel, designed and made by Mr. Omar Ramsden, of London. The oval plaque of enamel shows the image of the god, which is based on an exquisite early bronze statuette in the Wellcome Historical Medical Museum. The god is shown in profile, seated on a golden "throne of knowledge," while his feet rest upon a footstool representing the solid earth, which is surrounded by a green band symbolising the cultivated strip of land watered by the Nile. The latter is in heraldic blue and white, flowing by in full tide, whilst the background shows the blue sky of the East. The delicately wrought frame is surmounted by a double-headed and winged serpent from which is suspended the Egyptian "ankh," the symbol of life. The border is made up of lotus buds springing from a lower space inscribed with the name "I-Em-Hetep." At the back is engraved the following sentence: "George Stewart Abram commanded me to be wrought for the Reading Pathological Society, in October of the year of our Lord MCMXXV." At the Congress of the History of Medicine, held at Geneva in July last, a paper on I-em-hetep, the Egyptian Deity of Medicine, was contributed by Dr. J. B. Hurry, of

Reading. To the Reading Pathological Society will fall the honour of having been the first in this country to recognise the claims of I-em-hetep to be regarded as the Deity of Medicine. "I-em-hetep is," to quote the late Sir William Osler, "the first figure of a physician to stand out clearly from the mists of antiquity."

ALCOHOLISM AS AN INTERNATIONAL PROBLEM.

INTERNATIONAL movements are always suspect; it is often suggested that they are a kind of sport which enables reformers to visit foreign countries and hold enjoyable meetings. That the internationalism of the campaign against alcoholism is of real significance was the thesis of a lecture by Dr. R. Hercod, of Lausanne, before the Society for the Study of Inebriety on Oct. 13th. Certain countries, he said, have newly taken up vine growing; others have reduced their consumption by legislation or propaganda; economic depression has reduced markets; and the result of these things is a crisis in the wine-producing countries which has forced the growers to seek new custom. A French Minister for Agriculture encouraged the people to drink more wine on the grounds that this "temperance beverage" was really the best weapon in a serious fight against alcoholism (although an average annual wine consumption of 30 gallons per head suggests that the French population was already doing its duty); but however much sympathy may be felt with such enthusiasm, it is less easy to condone the methods adopted by France and Spain in forcing the importation of their produce on foreign countries. Iceland has been obliged to except Spanish wines from her prohibition laws because Spain could starve Iceland by refusing to admit her exports of fish, and Norway has suffered in much the same way at the hands of France. German breweries have considerable stakes abroad, and they and their methods are implanted in the Far East; and Scotch whisky is not without its influence on distant peoples. According to Dr. Hercod, Africa is suffering from a veritable scourge of alcoholism, which is the outcome of Western civilisation and which is inadequately controlled by the Convention of Saint-Germain-en-Laye. In partly Moslem countries the influence of religion is being overcome, and everywhere the lands which are producing more alcohol than they can consume are pressing their produce on others, in ways both legitimate and illegitimate. The support of the press has greatly helped the international campaign against prohibitive legislation, which has therefore been as successful as might be expected; but it is not merely in reaction against the activities of the liquor traffic, Dr. Hercod considers, that the cause of temperance will be helped by international coöperation. More information is needed on the experiments, both individual and social, of other countries, and the United States has lost a great opportunity by failing to organise a systematic and continuous investigation of the facts of prohibition. A strong educative campaign must be based on truth, and as yet there are gaps in scientific knowledge which should be filled. There are, for instance, discrepancies between the results of Dr. H. M. Vernon and Prof. E. M. Widmark, to name two workers only, and such discrepancies should be cleared up. Though it may be possible, even now, to come to an international agreement on the manufacture and distribution of alcohol on a smaller scale, it will be impossible to contemplate its total suppression so long as the population in general is unwilling to admit such a measure. Study of the propaganda methods of other countries, and especially their work in schools, is most valuable, and the International Bureau Against Alcoholism, of which Dr. Hercod is director, will do much to help. All who are imbued with the scientific spirit will approve the dissemination of the truth, about alcohol or anything else, but it is evident from the increasing stress laid by temperance workers on the social side of their work that scientific facts do not always impress the public. Alcohol has not been damned by being called a narcotic—for a narcotic is just what most people most enjoy. It has been truly remarked that "Mankind has never needed a stimulant, but rather something to take the edge off things."

CRITERIA OF PATHOGENICITY.

THE time-honoured criteria for the identification of a microbe as pathogenic are those familiarly known as Koch's postulates. The difficulty in applying these criteria lies in the fact that the majority of pathogenic organisms do not produce in experimental animals a disease exactly identical with that which they produce in man. This holds not only for organisms whose rôle in human disease is still open to doubt, such as Pfeiffer's bacillus, but also with the most firmly established species, whose pathogenicity has been proved both purposively and accidentally upon the human subject, such, for example, as the typhoid and cholera organisms. Consequently, in attempting to prove the relationship of a given organism to a supposed disease the experimental demonstration often breaks down over this point, and this is the crux of the difficulty which lies in the way of proving or disproving the truth of claims which are constantly put forward. In a recent paper [1] Dr. W. M. Crofton suggests that two criteria may be safely substituted for the third of Koch's postulates. The first is that if a vaccine from a given organism will reduce the morbidity and mortality of a certain disease, then the organism composing the vaccine is the one which causes the disease, and, in evidence thereof, he cites the case of typhoid vaccine and the incidence of typhoid fever. This contention may be admitted in the absence of direct evidence to the contrary, but it must be remembered that not only are all the factors in play in such a case extremely hard to control, but that non-specific effects in immunity reactions are not uncommon, and in clinical medicine other parallels may be found to the case of small-pox and vaccinia. Dr. Crofton's second contention is even less tenable. He asserts that if in a given disease a vaccine or bacterial preparation produces a reaction—e.g., the tuberculin reaction—which is not obtained with the normal individual, and its injection is followed by amelioration or cure of the disease, then such a vaccine is composed of the causal organisms. He instances his own results with influenza vaccine in encephalitis lethargica, and those of Dr. H. W. Crowe, who claims to have cured cases of rheumatoid arthritis by a *Staphylococcus albus* vaccine prepared from organisms recovered from the urine. Both of these instances are unconvincing, since the association of influenza and encephalitis is very generally agreed to be a negative one, and, further, the present treatment of rheumatoid arthritis by bacterial vaccines, for which considerable success is claimed, is avowedly non-specific, such organisms as *B. typhosus* being frequently used. Whether or no they embody final truth, Koch's postulates cannot be set aside without substituting a habit of extreme and rigid self-criticism in bacteriological research.

HOME SERVICE AMBULANCES.

A LEGACY of the war was the inception of the ambulance facilities we now enjoy in this country. Before 1914 in only a few of even the great cities had the municipal authorities established a motor ambulance service. The County of London was still content with the service of hand-propelled wheeled litters established by the police, and it was not until 1915 that the motor ambulance service was inaugurated to deal with accidents. During the war, as everyone knows, splendid work in the provision and maintenance of ambulance service was done through the coöperation of the Order of St. John of Jerusalem in England and the British Red Cross Society, and happily after the signing of the armistice these two organisations

[1] Journal of State Medicine, vol. xxxiii., No. 10.

decided that the need for their united efforts in the care of the sick had not come to an end. One of the first steps they undertook was the organisation of a national ambulance service for England, Ireland, and Wales. It was to the needs of the rural areas especially that attention was devoted, as in London and the great towns official boards had already begun to provide for the transport of the sick. The Home Service Ambulance Committee, formed under the Joint Council of the two Societies, began, therefore, to set up ambulance stations in various parts of the country, and to-day these number 341, with 34 affiliated stations, making a total of 375. The total number of cases carried since the establishment of the service up to the end of June, 1925, was 312,501. The Committee has just issued a new edition[1] of the register of these ambulance stations, grouped in counties, and to medical men in all counties there has been sent a list showing the stations in their county. Further, all the road scouts of the Royal Automobile Club and the Automobile Association carry a list of stations within their patrol. Wherever possible ambulances are placed in charge of those who by training have acquired dexterity in the handling of the sick and injured, nor is the handling of the vehicle itself of minor importance, for unskilful driving may gravely prejudice the patient's chances of recovery. The Order of St. John and the British Red Cross Society have a great body of trained members who voluntarily and gladly give their services. Maintenance costs are met in different ways according to local circumstances. In the majority of cases a charge is made for the use of the ambulance, calculated to cover the actual running expenses, with a margin sufficient to allow for remissions in necessitous cases. By such efficient ambulance service the sick can obtain a standard of treatment which might be impossible in or in the neighbourhood of their own homes, and in addition the safe transport of convalescing patients from large hospitals to smaller or at all events less expensive institutions can do much to relieve the pressure on the nerve centres of our hospital system.

PARATYPHOID TRACED TO ICE-CREAM.

IN his report for the month of August Dr. G. P. Kinloch describes an outbreak of paratyphoid fever. Investigation revealed the fact that 21 Aberdeen cases were associated with the outbreak, and, further, that two girls from Glasgow, who had been on holiday in Aberdeen from July 17th to the 30th, had sickened of paratyphoid fever in Glasgow on August 2nd and 5th, respectively. Previous to 1924 paratyphoid fever had been absent from Aberdeen for four years, but cases were notified during the present year on May 7th, June 20th, July 10th, and August 5th and 9th. These cases, as far as could be determined, were separate and distinct from the 23 cases of the outbreak. In endeavouring to trace the source of infection, the milk-supply could be excluded, as the 20 families concerned were supplied by 13 dairies. After full inquiry it was ascertained that the one common article of food consumed was ice-cream, obtained from a particular shop on July 20th. As the patients sickened on or about August 4th, the incubation period of the disease could be put at about 15 days. In the shop in question about six gallons of milk are daily converted to ice-cream, the milk being brought to the boil, cornflour, &c., added, and then the mixture again brought to the boil, and when cold introduced into the refrigerator. The time which elapsed between the infection of the ice-cream and the outbreak made it impossible to find out exactly how the ice-cream had been handled and disposed of on the day in question. Full bacteriological investigation of the workers in the shop was carried out. Both the shopkeeper and her mother had suffered from typhoid fever a long time ago, and their blood agglutinated to *Bacillus typhosus*, but not to *Bacillus paratyphosus*. The shopkeeper's son had agglutinins both to *Bacillus typhosus* and to *Bacillus paratyphosus*, but he had been inoculated against both varieties in the army in 1917. Samples of blood from the three employees contained no agglutinins, and the specimens of fæces and urine from all six persons engaged in the shop were negative. There was no evidence that the milk from which the ice-cream was made was infected. It was obtained from one of the largest milk retailers in the city. It is estimated that 360 customers might be supplied daily with ice-cream from this shop, but so far as is known only 23 cases of infection occurred. There were no deaths, but some attacks were severe. In view of the fact that during July there was an outbreak of food-poisoning in Aberdeen, affecting some 500 persons, traced to a bacillus of the Gaertner group, Dr. Kinloch proposes to publish a more detailed report of both outbreaks later.

THE PANEL CONFERENCE AND THE OPHTHALMIC SPECIALIST.

THE Annual Conference of Representatives of Local Medical and Panel Committees will meet in the Great Hall of the British Medical Association next Thursday, when there is a very full agenda paper. The most important, although not the most controversial, matter which will come before this Conference is the new arrangement made in regard to ophthalmic benefit for insured persons. As the culmination of a long series of negotiations between representatives of British ophthalmologists, the Ministry of Health, and the Association, there has now been drawn up a list of 600 practitioners throughout the country who are regarded as ophthalmic specialists and who are willing to treat insured persons at a uniform fee of a guinea to cover each complete case of refraction. These practitioners have obtained access to the list by virtue of holding certain ophthalmic appointments, of having made a special study of ophthalmology, or of being recognised by fellow practitioners as having special proficiency and experience. Their fees will be paid out of the surplus sums available for additional benefit revealed at the second Approved Society valuation. Most of the smaller societies eligible to join the scheme have come in, bringing with them a million and a half insured persons. The larger societies, although not hostile to the scheme, are ineligible to join until next year. The actual procedure is that any panel practitioner, finding the condition of a patient such as to require ophthalmic treatment, shall at his patient's request furnish him with a recommendation in writing that such treatment shall be obtained. The insured person then procures from his society the necessary authority to visit one of the ophthalmic surgeons on the approved list. The scheme represents not only the death-knell of an attempt on the part of lay bodies to institute a kind of optical benefit outside the medical benefit provisions of the Insurance Act, but is the first embodiment of a specialist service within the Insurance Acts. No doubt other specialist services will follow in due course now that official recognition has been given to the doctrine that insured persons are entitled to treatment by fully qualified persons.

THE SANATORIUM AND AFTER.

THE after-treatment of ex-sanatorium patients is one of the most urgent and elusive problems which medical and social science has to face. A scheme to provide industrial employment in hygienic workshops, started in London two years ago, has given results sufficiently encouraging to merit attention from all who are dealing with tuberculosis care and after-care. A public meeting held last week in Holborn Town Hall in support of the more general provision of such workshops is reported fully on another page. From the strictly medical standpoint it is admitted that the combination of sanatorium, settlement, training centre, and workshop offers the ideal conditions for after-care, but such settlements can only deal with

[1] Home Service Ambulances: Ambulance Stations and Officers in Charge. Obtainable from the Offices of the Joint Council, 19, Berkeley-street, London, W.1.

a fraction of the tuberculous population. While any workshop scheme has its inherent difficulties, the success of the London experiment known as Spero Leather Workers has surprised those who have watched it most closely. The improved health and happiness of the workers, consequent on their feeling of rehabilitation in industry and of their ability to maintain themselves, and perhaps a family, has exceeded expectation. During the 30 months since the workshop was started, absences on account of health have not exceeded 4 or 5 per cent. of the total time, although all the workers are ex-sanatorium patients; and this absence is covered by a scheme of sickness benefit. It is rather on the economic side that the difficulties lie. The tuberculous worker obviously cannot earn a living wage during his period of training or for some time after, and the distribution of manufactured goods on a small scale presents difficulty. It would be fatal to the success of any scheme to allow the standard of living of the workers to become inadequate, and steps have to be taken to supplement their income where necessary. At present the Central Fund for the Industrial Welfare of Tuberculous Persons is undertaking this responsibility. The outstanding need appears to be for schemes of employment providing work which does not require a prolonged period of training, such as repetition in workshops fitted with the necessary machinery or other work of unskilled or slightly skilled order. We hope that the publicity given to Spero Leather Workers will result in experimental schemes being started on other lines. Unfortunately the municipal workshop idea worked out by the late Dr. F. Stanley Tinker (THE LANCET, Feb. 21st, 1920) never came to fruition. It remains true, as he then said, that the value of the labour of tuberculous subjects has not yet been worked out. If properly managed it should, he thought, cover the cost of wages and even in time produce a small profit. This has been the case in the London experiment.

IMMUNISATION AGAINST SCARLET FEVER.

IN a communication recently made to the Minnesota State Medical Association Dr. W. Colby,[1] of the Miller Hospital Clinic, St. Paul, reported that he had carried out active immunisation with detoxicated toxin of 132 children, aged from 2 to 14 years, and 16 nurses, who all presented positive Dick reactions. Sodium ricinoleate was used as the detoxicating agent, which, as Dr. W. P. Larson, of Minneapolis, has shown, possesses the power of neutralising bacterial toxins without altering their immunising properties, as he proved by successfully immunising animals against diphtheria and tetanus by this agent. The technique of the procedure consisted in the addition of an equal volume of a 2 per cent. solution of sodium ricinoleate to the toxin, when the final dilution equalled 4000 skin-test doses per c.cm. Thus prepared the toxin was allowed to stand at least four hours before injection. One injection only was given, the dosage ranging from 500 to 4000 skin-test doses. No general reactions occurred, and there were only negligible local reactions, consisting in erythema and slight induration, which disappeared within 36 hours. Immunity was established in direct ratio to the amount of toxin given. In order to increase immunity still further the dosage was safely increased to 6000–8000 skin-test doses. For children under 10 years of age observations showed that 4000 skin-test doses were sufficient. In older children and adults a higher dosage was required, as was shown by the low percentage of immunity (37·5) in the case of nurses in whom only 2000 skin-test doses were used. In the subsequent discussion, Dr. Larson remarked that sodium ricinoleate was nothing more or less than a highly purified castor-oil soap. The advantages of neutralising the toxin with this substance instead of with antitoxin, as in the ordinary toxin-antitoxin mixture, was that antitoxin tended to sensitise the child to horse serum. Since it was possible to neutralise the toxin effectively with castor-oil soap and possibly to effect immunisation with one dose, the main objection to active immunisation against diphtheria and scarlet fever would be removed.

[1] Minnesota Medicine, September, 1925.

DIFFICULTIES AND DANGERS OF INSULIN.

THE unique value of insulin in the treatment of diabetes is known to every newspaper reader in the world, but its drawbacks are not fully recognised even by those who have to use it. Many first-class research workers have, however, been energetically testing it under all conditions since it was first given to the world by Dr. F. G. Banting, and the mass of their results has laid bare most of its dangers and made known the most efficient precautions against them. Those who attended the meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine that was held on Tuesday last had the privilege of hearing the latest results of some of the most eminent workers in this branch of therapeutics from the workers themselves. Dr. George Graham, who chose the subject for his Presidential Address, is well known as the author of many works on diabetes and allied conditions, and has a specialised experience of the disease that extends over many years.

Dr. Graham stated first of all that insulin, which is undoubtedly a very important discovery, does not cure diabetes, but so effectively counteracts as to enable the patient to take his normal place in social life. Very few who are treated with it remain invalids, and still fewer die entirely unaffected. He analysed 85 cases that had come under his own experience during the last two years at St. Bartholomew's Hospital, and showed that the 17 deaths were mostly in-patients who had never had insulin before they entered hospital, and in whom the diabetes had caused organic lesions that overcame the natural resistance even when the disease was counteracted. The large majority of patients treated with insulin were able to leave hospital after a few months and continue the treatment themselves. The difficulty here is to keep the blood-sugar normal after discharge. The normal in most people is below 0·1, but it is difficult to get it as low as this without causing discomfort from an overdose of the drug, while a high sugar content lowers the natural resistance to it. Hence, it was necessary by diet to reduce the sugar as much as possible without insulin. He exhibited several interesting charts and made some remarks on taking blood samples and on the regulation of treatment by post, a very interesting side-issue; he also gave an illuminating series of examples of the method of securing a good insulin "balance." Hypoglycæmia sometimes results if the dose is too high, but it is rarely very dangerous and the symptoms decline when sugar is administered. Curiously enough, the insulin requirement is often decreased after an attack. Another difficulty is that an intercurrent infectious complaint will send up the blood-sugar; if it is severe there is a danger of giving too much insulin. By taking urine samples every three hours and regulating the extra doses accordingly it is possible to keep step with the increased sugar content. Very large doses are often given with safety when the blood-sugar rises from this cause, sometimes up to 200 units. The danger comes when the patient begins to recover, and sugar should be kept ready against symptoms of hypoglycæmia.

Dr. R. D. Lawrence followed the President with some very interesting comments on the effect of exercise in lowering the sugar content. He quoted the case of a gardener who, on increasing his work at the beginning of summer and also taking up cricket, suffered from mild hypoglycæmia; 4 units decrease in the morning dose, which had been 10, restored this balance. When he resumed a more sedentary life his blood-sugar again rose. He is now learning to keep his balance according to his work output. Sunday tennis produced the same effect in another patient.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CLXIII.

TREATMENT OF HYDROCELE, HÆMATOCELE, VARICOCELE, AND SPERMATOCELE.

CONSIDERATION of the treatment of these four conditions involves a brief discussion of their ætiology and differential diagnosis. It is clear that where the scrotal abnormality occurs as the result of the presence of some other focus of disease in the body, it is this primary lesion which calls urgently for treatment. Again, should erroneous diagnosis of these conditions be made, treatment directed to their cure is more likely to result in harm than benefit to the patient.

I. *Hydrocele.*

This is the only one of these four conditions not essentially male, as it is occasionally met with in the labium majus, especially in little girls, as *Hydrocele of the Canal of Nuck*, when its treatment is that of excision of the sac through an inguinal incision.

Various types of hydrocele are met with in the male.

Diffuse Hydrocele of the Cord is a rare multilocular cystic condition of the whole scrotal extent of the spermatic cord, often extending up through the inguinal canal into the abdomen; and the treatment consists in dissecting the mass away from the cord, by no means an easy task.

Hydrocele of an Unobliterated Processus Vaginalis (congenital hydrocele) is a condition met with in young children and usually only diagnosed when there is some coexistent inflammatory condition of the peritoneal cavity, such as tuberculous peritonitis, which causes fluid to be exuded and gravitate into the vaginal sac. Congenital hernia is usually also present unless the opening in the neck of the sac is too small to allow of the passage of bowel or omentum, but is a fruitful source of misdiagnosis, the best point in differentiating the two conditions being the slowness with which the hydrocele fills and empties and the absence of resonance in the fluid swelling. In a young child both will be translucent. Treatment consists in excision of the sac through an inguinal incision as for hernia; should tuberculous peritonitis coexist operation should be put off till this has been cured, as not only is there grave danger of a tuberculous sinus following operation, but a spontaneous cure may result.

Encysted Hydrocele of the Cord presents as an ovoid swelling in or just below the inguinal canal; if in the canal it may be mistaken for a bubonocele but has no expansile impulse on coughing, and can often be drawn down out of the canal by gentle firm tension on the testicle and cord, when the upper limit of the mass can be defined. Rarely chronic suppuration in the course of the cord, following gonorrhœa or tubercle, may cause a similar pyriform cystic tumour. Treatment consists in cutting down on the swelling through an inguinal incision and dissecting it off the cord, a difficult task since the membrane is thin and friable.

Hydrocele of the Tunica Vaginalis (hydrocele) may result from effusion into the tunica vaginalis secondary to some disease of the testis, or obstruction to its venous return, or may be the result of primary irritation of the lining membrane of the sac. It can be diagnosed by its translucency and tapering upper end.

Secondary Hydrocele may result from (1) acute or chronic inflammation of the testes or epididymis, as in gonorrhœa, tuberculosis, or syphilis; or (2) follow on a testicular tumour. In the acute cases there is pain, and examination of the testes and adnexa after "tapping" the hydrocele reveals that they are enlarged. The condition may also be present, as a bilateral affection, in cases of ascites due to advanced cardiac and renal disease, carcinoma of peritoneum, retroperitoneal tumours, and chylous ascites (when the hydrocele fluid is also milky), due to lymphatic obstruction in filarial elephantiasis and blockage of the thoracic duct. In all these cases treatment must aim at the eradication or alleviation of the primary disease, no local treatment other than tapping being indicated.

Primary or Idiopathic Hydrocele can only be safely diagnosed when the foregoing conditions, and the possibility of a hydrocele in the fundus of a hernial sac, or even an irreducible hernia, have been eliminated. Treatment of the condition is operative and should, except in very old or debilitated patients, aim at effecting a radical cure by removal of the secreting membrane, though tapping may often be necessary as a diagnostic step. The patient should be seated or, better, lying on a bed or couch for this operation.

Tapping.—The position of the testes having been ascertained (usually by touch and the patient's sensation, though transillumination may afford valuable indication of its position), the pyriform scrotal swelling is grasped in the palm of the hand, and the penis being held away by the thumb the skin is made to stretch tensely over the mass. The scrotum is now painted with 2 per cent. iodine in spirit, and an area on the front free from veins being selected, a sterile trocar and cannula are plunged sharply in, the trocar withdrawn, and the fluid allowed to escape through the cannula, the hand being used to press out the fluid toward the cannula. The trocar needs plunging sharply through the tense skin and tunica, both of which it can be felt to pierce, and then a sense of loss of resistance is encountered as it enters the fluid. The common source of inability to obtain fluid is that owing to the skin not being held tense and insufficient force used the trocar slips along the outer surface of the tense tunica between it and the skin, but occasionally it is plunged into the testes, as evidenced by the patient experiencing sickening pain, when it should be immediately withdrawn and reinserted smartly elsewhere.

When no more fluid escapes, the cannula is withdrawn and the opening sealed with gauze and collodion. Some surgeons prior to withdrawal insert a few minims of irritable fluid such as pigmentum iodi, or strong carbolic, which is massaged around, with the object of destroying the endothelial lining and so effecting a radical cure, but this proceeding causes some pain and the results are not on the whole satisfactory, as loculation very often occurs.

Radical Cure.—A short incision is made upwards and outwards from the pubic spine; the scrotal root is to be avoided, as not only is the skin difficult to approximate accurately, with consequent delay in healing, but fouling of the wound, with consequent sepsis, is very liable to occur during the use of the bedpan and urine bottle. The sac of the hydrocele having been exposed in the depth of the incision it is pressed well up into the wound from below and held there while it is incised alongside the cord. A fairly free incision should be made and the stream of fluid directed into a bowl, pressure being meanwhile maintained on the scrotum to empty the sac. The wound is mopped out, and the edges of the sac grasped in forceps, and the whole tunica and testis pulled up through the wound and separated gently from the surrounding cellular tissue, in which all bleeding points must be secured if hæmatoma of the scrotum is to be avoided. This is a serious complication in that it is very liable to infection, with resultant sloughing of the testes; unless, therefore, absolute hæmostasis is assured it is well to drain the scrotum for 24 hours through the lower end of the incision by means of a corrugated rubber drain. Two methods

are in vogue for the treatment of the tunica vaginalis, which is now freely exposed, lying on gauze outside the wound :—

1. The simpler method recommended by Winkelbaum can be practised only on thin-walled hydroceles, and consists in everting the testis through the hole in the tunica vaginalis, which is thus turned inside out and secured in this position by a few stitches passing behind the cord and epididymis. The whole rather bulky mass is returned into the scrotum and the wound closed, the object being to secure adhesions between the endothelial lining and scrotal cellular tissue, and so ensure granulation and destruction of the former. The disadvantage of this method is that sometimes the endothelium grows over the cellular tissue and a pseudo tunica is formed, becomes filled with fluid, and recurrence results ; this is the more likely to occur if a small hæmatoma has been present. The percentage of recurrences recorded is, however, small, varying from 1 per cent. to 15 per cent.

2. The surer method consists in clipping away the whole of the parietal portion of the tunica vaginalis, an easy operation, but one accompanied by severe bleeding from the numerous vessels in the tunica. It is advisable to under-run the entire cut margin by a continuous glovers' stitch of catgut to prevent scrotal hæmatoma. The testis is then returned to the scrotum and the wound closed, with drainage for 24 hours if hæmostasis is incomplete.

The wound should be dressed with gauze, retained in position by a suspensory bandage, which acts also as a scrotal support. The patient may get up in four or five days, but should wear a suspensory bandage for two or three weeks.

II. *Hæmatocele.*

The cause of a hæmatocele is nearly always a sharp blow or injury, but may occur as a complication of a malignant tumour of the testis, or in blood diseases such as hæmophilia, scurvy, or severe anæmia. Since in this case local treatment would be disastrous, a blood count should be done if there is any doubt. The tumour presents as a pyriform swelling in the scrotum, which may show subcutaneous bruising, and it can be diagnosed from a hydrocele by the fact that it is not translucent, and from a hernia by having no expansile impulse ; moreover, its upper limit is defined.

Treatment in a recent case consists in supporting the scrotum in a tight suspender, or by strapping, and resting the patient in bed in an endeavour to limit the bleeding. Tapping should, if possible, be avoided for at least 48 hours, as it tends to cause recrudescence of the bleeding ; but it should be practised as a routine after that time has elapsed. After the blood has been withdrawn the affected side of the scrotum should be strapped with zinc oxide adhesive plaster for four or five days, being previously shaved in an adult.

In older cases where clotting has already occurred and thickening of the tunica resulted, the only satisfactory treatment is operation by the inguinal route as for radical cure of hydrocele, and excision of the parietal tunica vaginalis. In very old-standing cases, where extreme thickening and fibrosis of the tunica and scrotal tissues exist, this operation may not be practicable ; in such a case orchidectomy may be undertaken since the testis is usually atrophied and disorganised. The wound should be drained for 24 hours, whichever course is adopted, since oozing from the scrotal cellular tissue is almost impossible to control. Such old-standing cases are not infrequently diagnosed as neoplasms of testis, and it is practically impossible to be certain that a testicular tumour does not coexist with the hæmatocele ; for this reason orchidectomy should be carried out as the operation of choice.

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(*To be continued.*)

Special Articles.

VACCINIA AND VARIOLA.

DR. MERVYN GORDON'S STUDIES OF THE VIRUSES.

DURING recent years the Medical Research Council has given every encouragement to research work on filterable viruses and the diseases for which they are responsible. In the National Institute for Medical Research at Hampstead and at certain suitable centres elsewhere a general programme of investigation is being carried out. The work undertaken by Dr. Mervyn Gordon at St. Bartholomew's Hospital has now been published as M.R.C. Special Report No. 98.[1] Dr. Gordon chose vaccinia for special study because this virus lends itself readily to experimental work, and in the research now published he has certainly clarified and advanced our knowledge of these viruses and introduced methods which may be serviceable in the study of less known or unknown viruses.

The report is divided into three sections, the first of which occupies about a quarter of the book and gives an account of some previous studies of the virus of vaccinia and outlines the scope of Dr. Gordon's own researches. The middle half is devoted to a description of the author's studies of the virus of vaccinia and the last quarter reports some very interesting experiments with the virus of variola. Appended to the report are five instructive photographs, three of which illustrate the generalised eruption in alastrim and varicella, a coloured picture represents the type of lesions obtained in the experimental work on the shaved skin of the rabbit, and a fifth photographs the agglutination of vaccinia virus.

1. *Introduction.*

For most readers the second and third sections of the report will possess chief interest. We shall not therefore attempt to epitomise the already condensed review of previous studies reported in the introduction, but merely call attention to some of the problems connected with the virus of vaccinia on which this scholarly review throws further light. The filterability of vaccinia virus has been a much debated question, but it is clear that the difficulty experienced by many investigators in getting the virus to pass through a Berkefeld filter is not due to the large size of the organism so much as to its adsorption by the material of which the filter is composed. There is no doubt that the rabbit is susceptible to vaccinia and that immunity may be established by about the sixth day after subcutaneous, subdural, intracerebral, or intravenous inoculation of the virus. Serological methods of study have established the fact that in the course of development of immunity three specific antibodies make their appearance in the blood—namely, a virulicidal or antivirulent substance that possesses the capacity of inactivating vaccinia virus in vitro, a precipitating or agglutinating antibody that causes flocculation of the virus, and a complement-fixing antibody. The precise nature of the antibody which has received the cumbersome and somewhat vague name of "virulicidal" is far from clear at the present time ; a curious attribute is revealed by the observation that the virulicidal power of a serum decays faster than the immunity. The precipitating antibody also needs more accurate definition, and the use of the term precipitin would appear to be premature until it has been shown that the substances in the filtrate upon which the reactions depend are really in solution. The complement-fixing antibodies are of constant appearance in response to infection either by vaccinia or variola virus, and the

[1] Studies of the Viruses of Vaccinia and Variola. By M. H. Gordon, C.M.G., C.B.E., D.M., F.R.S. H.M. Stationery Office. 3s. 6d.

complement-fixing antibody excited by one of these viruses reacts also with the other; but beyond that the reaction is specific. A point of special interest in connexion with passive immunity is the natural transmission of what appears to be a passive immunity from a mother immune to vaccinia to her fœtus. In a case recorded by Béclère, a child proved immune to vaccinia although twice inoculated cutaneously with active vaccinia virus within a month of birth. The blood of the mother and also that obtained from the umbilical cord both contained the virulicidal substance, although the former was the stronger in this antibody. This transmitted immunity is, of course, transient. Dr. Gordon also refers to the successful treatment of patients suffering from variola with the serum of small-pox convalescents, the blood being collected between the twenty-fifth and fortieth day, when the virulicidal power of the serum is at its maximum.

The later sections of the report contain important observations on the relations between the viruses of vaccinia and variola, and in reviewing previous inquiries into this question the author remarks that experimental work on serological lines has hitherto been weak on the quantitative side, a defect which, it will be seen, has to some extent been removed by the more accurate technique which Dr. Gordon has introduced. In his work the skin of the rabbit was used as a "reagent" for detecting the presence of vaccinia virus and the test was made quantitative by submitting material to a known degree of dilution before inoculation. He used also the rabbit's skin as a culture medium for providing supplies of this virus by the simple expedient of killing the rabbit and harvesting its lesions at the height of their development. For further details of his technique the original report should be consulted, wherein all experiments are described with exactitude. We pass now to the second section which deals with studies of the virus of vaccinia.

2. *Studies of the Virus of Vaccinia.*

One of the first investigations undertaken was a study of the relative potency of various specimens of calf lymph in use in this country for purposes of vaccination, and after each had been submitted to decimal dilution the degree of their individual capacity to produce vaccinia on the rabbit's skin was determined. We notice from the published protocol that very significant variation existed amongst these lymphs, the most potent being active at a dilution of 1 in 100,000, whereas the weakest only at 1 in 10. This experiment alone points to the urgent need of some compulsory standardisation of vaccine lymphs supplied to vaccinators. As regards their reciprocal immunising action all these individual strains of virus appeared to be identical. Disinfection experiments showed that vaccinia virus is more susceptible to the action of acid than of alkali and that the virus withstands ether comparatively well. But the outstanding feature of the disinfection experiments was the very high value that potassium permanganate appears to possess for destroying in vitro the virus of vaccinia. Experiments on the effect of heat on vaccinia virus showed that an exposure for 30 minutes to 55° C. reduced the active virus by over 99 per cent., but did not destroy it completely. A number of experiments were undertaken to determine the extent to which active immunity to vaccinia can be produced in the rabbit by prophylactic use of this virus after attenuation or destruction by various measures. These proved that a substantial degree of immunity can be produced by vaccinia virus after being heated for 30 minutes at 55° C. provided that the condition of the virus as regards potency was good in the first place and that the dose reached a certain critical or effective strength. This immunity appears four days after subcutaneous injection and thereafter rises rapidly. By the hundredth day a decrease had occurred but a certain degree of immunity could still be detected. Several experiments were designed to study the specific antibodies to vaccinia, and Dr. Gordon has formed the opinion that vaccinia virus excites the production of specific antibodies in the blood of the rabbit after the fashion of ordinary pathogenic bacteria. The complement-fixing antibodies and agglutinins appear to be equally specific for the viruses of vaccinia or variola. Some observations furnished evidence of the presence of lysin in anti-vaccinia serums, but no systematic attempt was made to define the part played by this antibody in immunity to vaccinia. The question as to whether the serum of rabbits immunised against vaccinia is capable of protecting others from this disease was investigated by means of some carefully planned experiments which showed that anti-vaccinia serum which possesses definitely protective properties against the virus of vaccinia may be prepared in the rabbit. One c.cm. of this serum protected against 100 minimal vaccinial doses of virus. Having by means of the cutaneous test of virulence established a sufficiently accurate method of determining the abundance of vaccinia virus in a given suspension, Dr. Gordon proceeded to study the effect on this virus of gravity, centrifugation, and passage through a Berkefeld filter. These experiments definitely proved the virus of vaccinia to be particulate. When a suspension of the virus was allowed to stand 3–10 days in a long narrow tube the top layer was found to be less active than the bottom. The centrifuge reduced the virulence more in two hours than gravity did in three days, but in both these tests the complement-fixation test, being less delicate than the virulence test, failed to detect any difference between the surface and deeper layers. The Berkefeld filter removed the virus so thoroughly from a suspension that all of the three indices of its presence — namely, virulence, complement fixation, and agglutination—although strongly positive before filtration, were thereby rendered negative.

Some particularly interesting experiments are reported by Dr. Gordon on the permeability of various surfaces of the rabbit to the virus of vaccinia. These can be best described in a quotation from the report (p. 87):—

> Employing as chief criterion the production of immunity, evidence has been found that in the absence of mechanical injury and under approximately natural conditions the virus of vaccinia is capable of penetrating the system of the rabbit through the external auditory canal, the ocular conjunctiva, and the nasal mucosa; the last being the most permeable of these three surfaces, since a dose of virus so small as that contained by 0·01 mg. of calf lymph can successfully penetrate by that channel and produce immunity.
>
> When a dose of vaccinia virus of this magnitude, or above, gains access to the nasal mucosa of the rabbit, the animal after an incubation period of 6–8 days develops a condition of acute nasal catarrh accompanied by a mucopurulent discharge which in early stages contains the virus of vaccinia in abundance, and may also contain catarrh bacteria such as pneumococci. This acute stage does not last as a rule for more than a day or two. The catarrh may spread to the conjunctiva. The animal is not seriously ill, and the condition closely resembles that of acute nasal catarrh in the human subject.
>
> Immunity can be produced in the rabbit by the nasal route with vaccinia virus that has been attenuated by exposure to 55° C. for 30 minutes, provided that the dose is of the size found necessary in previous tests of this matter, employing the subcutaneous route. There is reason to believe that similar success may be obtained by the oral route if a large enough dose of the heated virus is given.
>
> When scarification is employed, the skin is more susceptible to the virus of vaccinia than is the nasal mucosa without trauma.

3. *Studies of the Virus of Variola.*

During the period that the investigation of the virus of vaccinia that have been described in preceding sections wepe in progress the occurrence of several outbreaks of small-pox in this country afforded an opportunity of testing examples of variola virus in a similar way to vaccinia. Dr. J. C. G. Ledingham has recently reviewed in these columns the experimental evidence in favour of the unity of the alastrim and variola virus (THE LANCET, 1925, i., 199). With his views Dr. Gordon appears to be in substantial agreement, and we pass therefore to record briefly the experiments recorded in the M.R.C.

report which bear on this important question. Dr. Gordon found that samples of variola virus obtained from cases of the mild and severe types of small-pox respectively had no effect on the rabbit, though they both affected the monkey when inoculated cutaneously. Vaccinia appeared to protect the monkey against either of these strains of variola virus better than the strains of variola protected that animal against vaccinia. It is particularly interesting to notice that specimens of variola virus from five outbreaks, including three of the mild and two of the severe type of small-pox, were all found to react positively with antivaccinia serum in the complement-fixation and agglutination tests. Dr. Gordon observes (p. 135)—

> As these laboratory reactions appear to be specific for the viruses of vaccinia and variola, there is good reason to believe that they are capable of affording valuable assistance in the practical diagnosis of small-pox, especially in doubtful cases where such help is most needed.

Thus no difference could be detected between the virus of the mild or alastrim type of small-pox and of the more severe type of this disease, except in regard to virulence for the monkey. The argument would have been even more conclusive had it been possible to employ cross tests of the capacity of virus from alastrim to protect a monkey against virus from severe cases of small-pox and vice versa. Nor has an antivariola serum yet been prepared by which the relation of various strains of variola virus to each other and to vaccinia respectively can be determined.

Before concluding our brief summary of this notable contribution to the literature of virus infections, which the laboratory worker will find stocked with valuable experimental detail, we wish to draw attention to three pages of the report which the general reader will find particularly interesting. In the section on the relationship between the viruses of alastrim, variola, and vaccinia (pp. 105–107) Dr. Gordon explains by the aid of a diagram his view that the vaccinia virus consists of equal parts of vaccinia and variola elements, and adds some striking quotations from the writings of Jenner and his biographer, which prove that Jenner himself had distinguished the two different manifestations of small-pox and yet realised their essential unity.

We propose to comment on certain other points raised by Dr. Gordon's work, particularly on the permeability of the nasal mucous membrane of the rabbit to vaccinia virus and the catarrh provoked.

PROCEEDINGS OF THE ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.*

(*Continued from p. 723.*)

Society of Apothecaries of London.

(App. LXXXVI. and Q. 21218–21236.)

EVIDENCE was given jointly on behalf of the Society of Apothecaries of London and of the Association of Certificated Dispensers by Dr. A. D. Brenchley and Dr. R. B. C. Wall, by Mr. Graham Bott and Mr. A. Wager.

By Section XVII. of the Apothecaries Act, 1815, it is not lawful for any person (except as in the Section mentioned) to act as an assistant—i.e., a dispenser—to an apothecary—i.e., a Licentiate of the Society—in compounding or dispensing medicine without obtaining the certificate of the Court of Examiners established by the Act. Dispensers who are holders of the certificate have been largely engaged by medical men or public institutions, and it was submitted that the nine months' training required by the Society's syllabus and the examination which candidates for the dispensers' certificate have to pass fully guarantee their fitness to dispense medicines.

The witnesses contended that the position of these dispensers had been prejudicially affected under the National Health Insurance Acts, and urged that holders of the certificate who had three years' practical experience should be recognised under those Acts for all purposes of dispensing supply of medicines. Although such a claim to recognition was adversely reported on by a Departmental Committee in 1913, the witnesses pointed out that the period of training had been raised from six to nine months, and further, that they proposed three years' practical experience in dispensing as a qualification. No claim was made that these dispensers should be allowed to keep chemists' shops.

East of Scotland Dentists' Panel.

(App. LXXVII. and Q. 19900–20114.)

This evidence, which was given by Mr. A. E. Miller and Mr. W. Arbuckle, followed in all essential respects that given by the dental surgeons in England. The recommendations put forward included one as to the necessity for a wide extension of dental treatment, and for its establishment as a permanent benefit, and the need for a separate administration in Scotland. Statements were made as to the dangers of dental disease, the insufficiency of the present "additional benefits," and the advantages of the panel system over a system of clinics.

The witnesses were asked how long it would take before the suggested saving in the cost of medical benefit brought about by a national scheme of dentistry would be reflected in the acceptance by the doctors of a lower capitation fee. The answer was that they were not interested in the question. On the question of a check against over-attendance, the witnesses did not think that the dentists were prepared to accept a scaling down of their bills.

> Suppose in respect of a simple filling, which is 5*s.*, at the end of the year, there was not enough money to pay all your bills, and instead of getting 5*s.* you only got a dividend of 4*s.*, what then?—I did not think this was to be a sort of gamble.

Evidence of the Association of Poor-law Unions.

(App. XC. and Q. 21632–21725.)

It was submitted by Mr. R. A. Leach on behalf of the Association: That boards of guardians should be treated equally with other local authorities in respect of grants made from the National Exchequer for health work; that other local authorities should not only be under no disability from entering into agreement with boards of guardians for the performance of any health work which the boards are doing for non-insured classes, but that encouragement should be given in every way to such agreements being entered into; that in the case of an insured person who has no dependants entering the Poor-law institution for medical treatment the guardians be legally empowered to enforce payment to them by the Approved Society of any benefit payable in respect of the insured person during the period of his or her stay in the institution.

It was contended that the Poor-law medical service, both domiciliary and institutional, was excellent. As regards salaried officers remaining with the guardians, it was explained that while the younger men might hold short-time engagements in the same way as house surgeons in a general hospital, the principal medical officers tended to remain in the permanent service of the guardians. While the National Insurance Scheme had effected a lightening of domiciliary medical relief under the Poor-law, there had been a considerable increase on the institutional side.

As to possible changes in local health services:—

> Your contention is that if medical treatment was put under some new local health service, it would not alter the fact that it was Poor-law treatment under another name. That is your point of view, is it not?—That is so, and I think myself it would be a great pity that the functions as regards the destitute poor should be entrusted to any authority which has duties other than dealing with public assistance.

* References to the paragraphs in the printed statements issued as appendices to the reports of the oral evidence are given thus: "App. X. 69," and references to the oral evidence thus—Q. 1369.

Association of Parish Councils of Scotland.
(App. LXXX. and Q. 20535–20636.)

Mr. M. A. Reynard, clerk to the Glasgow Parish Council, gave evidence to the effect that under the National Health Insurance Acts, as at present constituted, it is provided that no portion of the benefits payable under the Insurance Acts are to be allocated to boards of guardians or parish councils, where the insured person has been treated in a hospital belonging to such parish council. It was felt that not only is there an injustice in thus debarring parish councils from receiving payment from these persons for the treatment afforded, but also that, in many cases, the money is not put to a proper use.

The witness said that there was greater readiness nowadays on the part of the doctor and patient to accept Poor-law institutional relief, and yet that with 2256 cases of insured persons who were treated in hospitals by the Glasgow Parish Council last year, only £112 was voluntarily surrendered by the insured persons for treatment, as against an estimated expenditure of £12,000.

It was especially urged that where an insured person died in hospital and had no dependants any accrued sickness benefit should be paid over to the public authority. It was suggested to the witness that the Poor-law authorities had an already existing obligation to persons who were destitute, and that if insurance benefit were paid to an institution the effect would be that contributions by the State and by the employer would be used for the relief of rates.

As to the misuse of the funds by the patient, the witness cited a recent case of a patient who had just gone out of hospital and was squandering his sickness benefit money.

He was entitled to his National Insurance money from December of last year up to date, and he frankly admitted to me that he had borrowed £3 on the strength of the £20 he was going to get, and he got drunk on it, and he came in demanding a certificate to go to his society and uplift the £20. I said to him, "What are you going to do?" He said, "It will keep me fine for a month anyway, and I will be back on you then."—And that is not an isolated case?—No, there are hundreds more of them. It is because of that that I am asking you to devise some method whereby we will get rid of that terrible waste of public money.

Evidence of Mr. W. J. Braithwaite.
(App. XCI. and Q. 21726–21827.)

Mr. Braithwaite, who was at one time secretary to the Joint Committee of National Health Insurance, confined his evidence to a recommendation that the system of payment per case instead of the capitation system—at any rate, for industrial areas—wanted more consideration by doctors and others than appeared to have been given to it.

The case system, he said, which involves the payment for each case treated, removed the suspicion that a doctor might not be glad to see an insured person, made it possible to introduce specialised services into the insurance system, gave the doctors at least the same interest in the quick recovery of their patients as did the capitation system, and resulted generally in a close approximation to the conditions of private practice.

Mr. Braithwaite said that the difficulty about chronic cases could be obviated by defining the period of an illness which would constitute a "case." Speaking from his recollections of the working of this system in Germany in 1910, the witness said that machinery would, of course, be necessary to guard against the possibility of "cases" being unduly multiplied.

It was suggested in the course of examination that if there was any tendency to multiply cases the psychological advantages of the system might be severely discounted by the friction and suspicion which might be engendered by the machinery of a check. The witness appeared to think that any attempt on the part of one doctor in a district to increase "cases," with the result that the remuneration of the other doctors was cut down, might fairly be left to the doctors themselves to provide adequate safeguards, as with the Manchester attendance system at present.

THE LONDON MEDICAL EXHIBITION.

THE Medical Exhibition, which has just been held at the Central Hall, Westminster, proved, as we indicated last week, a decided success both from the point of view of the number of medical visitors and the scope of the exhibits; and the fact that a similar exhibition will be opened in the Philharmonic Hall, Liverpool, on Nov. 24th next for four days shows how much these exhibitions are appreciated. Among the reasons for this are the opportunity which is thus given to the medical man for making himself familiar with the more recent technique while affording him a means of selecting particular drugs and appliances which he may find useful in his daily practice.

While it is impossible to make any exact classification of the exhibits owing to their wide scope and the overlapping among the exhibitors of medical and surgical exhibits, we make the following broad divisions: Drugs and Foods, including Milk and its Preparations; Instruments and Appliances; Spas and Waters; and Medical Publishers.

DRUGS AND FOODS.

ALLEN AND HANBURYS, LTD. (37, Lombard-street, London, E.C., Vere-street and Wigmore-street, W.), in addition to their standard dietetic and pharmaceutical preparations, drew particular attention to Iodolysin, a soluble compound of thiosinamin containing 47 per cent. of iodine, which in many hands has proved so useful in rheumatism and allied conditions, and to sodium tetrabromphenolphthalein, for the X ray diagnosis of diseases of the gall-bladder.[1] Other notable exhibits of this firm were "Osmo" Kaolin for intestinal infections, the Lister Institute products—sera, vaccines, &c.—and Antivirus for use as a specific immuniser and bactericide in the treatment of local infections.—The exhibit of BURROUGHS WELLCOME AND CO. (Snow Hill Buildings, E.C.) provided a striking example of progress in scientific pharmacy. Amongst the more recent additions was "Hypoloid" Bismuth Metal, which places the potent spirillicidal properties of bismuth in isotonic glucose solution at the disposal of the physician; and "Kharsulphan," for subcutaneous or intramuscular injection, which provides a further simplification of arsenobenzol therapy; and "Iodicin," a product containing a high percentage of iodine in organic combination, in a pleasant, palatable chocolate base, is a very suitable means of administering iodine to children. Intensive iodine treatment is also facilitated by tabloid "Iodicin" capsules, each of which secures the administration of one grain of iodine in organic combination. "Ethidol," which contains 20 per cent. of iodine, is an allied product for use by injection into tuberculous abscess cavities, or for inunction in neuritis, rheumatoid arthritis, and sciatica. Vaccines, sera, tuberculins, and diagnostic products, prepared at the Wellcome Physiological Research Laboratories, were also displayed.—BOOTS PURE DRUG COMPANY, LTD. (Nottingham), had an exceedingly fine display of synthetic and medicinal chemicals, solution tablets specially made to facilitate the rapid solution of drugs, demulcent and medicated pastilles, and dressings and surgical sundries. Among antivenereal preparations were Stabilarsan, Bismostab, Thiostab, and Acriflavine, while insulin and pituitary extracts were prominently displayed.—THE ANGLO-FRENCH DRUG CO., LTD. (238A, Gray's Inn-road, W.C.), showed a wide selection of pharmaceutical preparations, those receiving particular attention being Adrepatine, a pluriglandular compound for the treatment of hæmorrhoids; Creosal Syrup, combining guaiacol, phosphoric acid, and calcium, for the relief of cough; Digibaine, an association of digitalin and strophanthin; Iodaseptine, an intravenous bactericide; and Orargol, a suspension of colloid silver and gold. Labat syringes and needles were also shown.—BURGOYNE, BURBIDGES AND CO., LTD. (East Ham, E.), displayed Cooper's Colloids in comprehensive range, including argentum, arsenium, ironmalt, hydrargyrum, manganese, iodum, and sulphur, the latter being for bath medication and for internal administration.—BENGUÉ AND CO. (52, Charlotte-street, W.), in addition to their well-known Ethyl Chloride, showed various pharmaceutical preparations, including Eupurgo for chronic constipation and hæmorrhoidal conditions; Muthanol, radio-active bismuth hydroxide suspended in olive oil, for use as a non-toxic spirillicide; and Forxol, a preparation of nucleogenic vitamins, for neurasthenia and diseases of nervous origin.

OXO, LTD. (Thames House, Queen-street Place, E.C.). In addition to the well-known products of this firm, Oxo, Oxo cubes, Hospital Oxo, beef essence, and Lemco,

[1] THE LANCET, July 11th, 1925, p. 68.

much interest was shown in their various "Oxoid" gland extracts, tablets, and fluid. Among them Pitoxylin, which is a new "Oxoid" endocrine preparation specially suitable for obstetrical, surgical, and general use, and consists of a sterile solution of the purified oxytocic and pressor substances from the posterior lobe of the pituitary gland. It is protein-free, and the undesirable ingredients have been eliminated so that the risk of inducing anaphylactic troubles when using the preparation is entirely avoided. Each batch manufactured is adjusted to a definite standard of activity.—G. W. CARNRICK CO. (London agents: Brooks and Warburton, 40, Lexington-street, W.). Single gland and pluriglandular substances of many kinds were shown at this stand, where a 253-page book, "Organotherapy in General Practice," was at the disposal of medical men. Among the preparations to which attention was particularly drawn were Hormotone and Trypsogen.—VIROL, LTD. (Hanger-lane, Ealing, W.), in addition to Virol and Virolax, demonstrated the nutritive properties of Virol and Milk for nervous and mental fatigue after fevers and in convalescence generally, a golden-coloured powder which requires only the addition of hot water, and has been found of great use by nursing mothers.—BOVRIL, LTD. (148–166, Old-street, E.C.), exhibited Bovril and Invalid Bovril, and Bovril and milk; and VITMAR, LTD. (Callard's Vitamin Foods) (Standen-road, Southfields, S.W.), showed several forms of their food products.—CHAS. ZIMMERMANN AND CO., LTD. (9 and 10, St. Mary-at-Hill, E.C.), drew attention to Asthmolysin, a suprarenal-pituitary compound for relief in asthma, especially if due to hormone deficiency; Idozan, a therapeutic agent used in anæmia; and Posterisan, in the form of ointment and suppositories, a new vaccine therapy for local application in the treatment of hæmorrhoids and allied conditions.—The chief features of the exhibit by OPPENHEIMER SON AND CO., LTD. (179, Queen Victoria-street, E.C.), were Roboleine, now well known as a reconstructive food containing animal fats, maltose, diastase, and natural nitrogenous and phosphoric compounds with the three vitamins; Colloidal and organotherapeutic preparations, and the admirably adapted method of administering these last two by "Oscols" and Palatinoids. Particular attention was called by this firm to their automatic oxygen generator which is portable and safe and renders oxygen instantly available for medical use.—PARKE, DAVIS AND CO. (50, Beak-street, Regent-street, W.) had quite an interesting and attractive display of pharmaceutical preparations, among them being Dibromin, a practically non-toxic germicide used in dilute solution as a wet dressing, douche, or gargle; Metagen, a concentrated vegetable extract containing water-soluble and fat-soluble vitamins; and Metagen and cod-liver oil emulsion; Olgar, containing liquid paraffin of high viscosity with agar; and Neo-Protosil, a readily soluble colloidal silver iodide compound. This firm also showed vaccines prepared under the direction of Sir Almroth Wright at St. Mary's Hospital.—LIONEL COOPER (14, Henrietta-street, Covent Garden, W.C.) had an interesting exhibit, and particularly noticeable among the many medical preparations was Milesia, a tablet containing 3 gr. of magnesium hydrate, Presoiod, an iodine solution, and Sil-Al, a physiologically pure silicate of aluminium.—C. H. HEWLETT AND SON, LTD. (35–42, Charlotte-street, and 83–85, Curtain-road, E.C.), exhibited a selection of their antiseptic cream, medicated skin lotions, formalin mouth wash (Gargar); Hæmorrhaline, an improved ointment for hæmorrhoids; and Hormonigen, a combination of pluriglandular extracts; as well as surgical instruments, dressings, and sprays.—HOWARDS AND SONS, LTD. (Ilford, E.), who supplies ether for anæsthetic purposes to many well-known hospitals, made a prominent feature of their Hydrogen Peroxide and of their Agotan brand of Phenylcinchoninic Acid as a remedy for rheumatism, gout, rheumatoid arthritis, brachial neuritis, neuralgia, sciatica, and gouty skin diseases.—MENLEY AND JAMES, LTD. (64, Hatton Garden, E.C.), showed Iodex, a therapeutically active iodine in an emollient base, which does not stain or irritate the skin and is quickly absorbed.—W. MARTINDALE (10, New Cavendish-street, W.), who displayed a large assortment of drugs and medical preparations, put up in attractive forms, drew attention to their absorbent moss surgical dressing; Aspriodine, a new compound of aspirin and iodine, as the name implies; and Phenoltetrabromphthalein, Tetraiodophthalein, and Tetrachlorphthalein for gall-bladder visualisation and liver function tests. This is referred to in the "Extra Pharmacopœia" of Martindale and Westcott, Vol. II., 1925.—H. R. NAPP, LTD. (3 and 4, Clement's Inn, W.C.), attracted much attention by their demonstration of rats showing the growth of carcinoma produced by the injection of tumour pulp and by the display of wax models showing the treatment of tuberculosis and allied mixed infections by cutaneous inoculation. Among the preparations shown were Ponndorf, for cutaneous inoculation in tuberculosis; Xifal Milk, a combination of sterilised milk; a vaccine for injection in epilepsy, myocarditis, and infantile paralysis; and Hypertherman, an injection for the protein body therapy of obesity. Vaccines and sera were shown in variety.—HOFFMANN-LA ROCHE CHEMICAL WORKS, LTD. (7 and 8, Idol-lane, E.C.) Allonal, which was prominently displayed at this stand, was reported upon in THE LANCET as recently as Oct. 3rd, p. 706, as well as chocolate Iodostarin for the prophylaxis and treatment of simple goitre. Sedobrol Sedative Bouillon was also shown. This consists of sodium bromide incorporated in a mass of vegetable extractives put up in tablets. It is prepared by dissolving one or two tablets in a cup of boiling water. It is non-poisonous and non-narcotic.—MAY AND BAKER, LTD. (Battersea, S.W.), showed a very fine range of drugs and chemicals, especial prominence being given to anti-venereal remedies, including Novarsenobillon, which has been approved by the Ministry of Health for use under the Venereal Diseases Regulations. This remedy has also been used in yaws, malaria, and rat-bite fever. Ametox, a purified and sterilised sodium thiosulphate for use as an antidote to metallic intoxication, especially in arsenical dermatitis and bismuth and mercury stomatitis, was shown among other drugs, as well as Mestarine, the sodium salt of theobromine N-acetic acid, which is a new addition to diuretic medication possessing stability and ready solubility.—SCHERING, LTD. (3, Lloyd's-avenue, E.C.), prominently displayed samples of the medicinal products from their laboratories; Atophan, phenylchinolin carboxylic acid, for all diseases associated with uric acid diathesis; Atophanyl, a solution of sodium salts of atophan and acid acetyl sal. with 0·16 per cent. of novocaine, for injection in the treatment of laryngeal catarrh and other affections; and Maturin (the original product phloridzin), a preparation which produces artificial glycosuria in early pregnancy for the diagnosis of which it is employed.—W. DEDERICH, LTD. (Stanley House, Dean Stanley-street, Westminster, S.W.), drew attention to Ichthyol, a sulphonated schist oil preparation containing a high percentage of sulphidic sulphurs. Other preparations shown by this firm were Ichthargan and Ichthoform, the former containing 30 per cent. of silver, the latter being an ichthyol-formaldehyde preparation. Mergal, a mercurial compound for the treatment of syphilis by oral medication, also received prominence.

ANGIER CHEMICAL COMPANY, LTD. (86, Clerkenwell-road, E.C.), displayed Angier Emulsion (petroleum and hypophosphites), each fluid ounce of which contains 33⅓ per cent. of purified petroleum, 9 gr. of combined hypophosphites of lime and soda, with chemically pure glycerine.—CROOKES LABORATORIES (22, Chenies-street, W.C.), devoted entirely to the manufacture of colloids, showed a wide range of these products, and with regard to Collosol Ichthyol claim with pride that it is a natural ichthyol of entirely British origin.—ANGLO-AMERICAN OIL CO., LTD. (Albert-street, Camden Town, N.W.), exhibited their well-known Nujol and Mistol, and in addition, other preparations of liquid paraffin, including Semprolia, a petroleum jelly in both yellow and white colour, which can be conveniently used as an ointment base, and Semprolax, a palatable preparation containing 80 per cent. of liquid paraffin.—DIMOL LABORATORIES, LTD. (40, Ludgate-hill, E.C.), showed their product Dimol, a benzene derivative, dimethylomethoxyphenol in combination with the tri- and tetramethylopheno, is a bactericide which is claimed to be 35 times more efficient than pure phenol; it is not absorbed and is voided with the fæces. Indicated in putrefactive and other bacterial invasions of the intestinal tract, it is put up in the form of pulverettes, syrup, pastilles, lavage powder, ointment, snuff, and as a dentifrice.—DESHELL LABORATORIES, Ltd. (Premier House, 150, Southampton-row, W.C.), exhibited Petrolagar, an emulsion of liquid paraffin and agar-agar, which is supplied (plain, alkaline, phenolphthalein, and unsweetened). It contains 65 per cent. of pure mineral oil of high viscosity and 10 per cent. of agar-agar.—BRITISH ALKALOIDS CO. (104, Winchester House) displayed antiseptics and germicides.

A large number of illustrated pamphlets showing the many uses of Antiphlogistine in medical and surgical practice and in dentistry were displayed by the DENVER CHEMICAL MANUFACTURING CO. (London, E.), and their product, the well-known antiseptic poultice which is indicated in inflammatory and congestive conditions, received much attention.—GENATOSAN, LTD. (Loughborough, Leicestershire), in addition to Sanatogen, Genasprin, and Formamint, exhibited a new detoxicated vaccine prepared from *B. pneumosintes* for the treatment and prophylaxis of influenza.—KOLYNOS (Incorporated) (Chenies-street Laboratories, W.C.) showed their well-known non-gritty dental cream, which does not stain the teeth and is very refreshing and pleasant to use as well as being a reliable antiseptic, and the PEPSODENT CO. (42, Southwark Bridge-road, S.E.) their equally well-known acid dentifrice, which stimulates the salivary glands and gives a brilliant polish to the teeth. It contains no injurious ingredients.—JEYES' SANITARY COMPOUNDS CO., LTD. (64, Cannon-street, E.C.), had a display of Cyllin in its many adaptations as a bactericide, whose slight toxicity makes it suitable for employment as

an internal or external antiseptic. For medical and surgical uses the preparation has a Rideal-Walker co-efficient for *B. typhosus*, 24 to 26.—NEWTON CHAMBERS AND CO., LTD. (331, Gray's Inn-road, W.C.), exhibited the Izal disinfectant specialties: THERMOGENE CO., LTD. (Haywards Heath, Sussex, and Victoria Embankment, E.C.), showed their curative wadding, Thermogene, which stimulates the circulation in affected parts and relieves congestion and inflammation: J. C. ENO, LTD. (Pomeroy-street, S.E., and Victoria Embankment, E.C.), drew attention to their effervescent saline laxative, Eno's Fruit Salt; and KEEN ROBINSON AND CO., LTD. (incorporated with J. and J. Colman) (London and Norwich), showed various preparations of barley and mustard.—The CITY SOAPWORKS (Wapping, E.) exhibited Gibbs's various soaps, shaving creams, and dental cream; the PINOLEUM CO., INC. (Distributing agents, Brooks and Warburton, 40/42, Lexington-street, W.), demonstrated the use of Renoleum, an anodyne, antiseptic, and emollient preparation for medication of the mucous membrane of the throat and nose; PASTILLES, LTD. (124, High-street, Shoreditch), had a display of Lakerol Bronchial Pastilles; and IRVING'S YEAST-VITE LABORATORIES (Cecil House, Holborn Viaduct, E.C.) showed yeast tablets.

JAEGER CO., LTD. (95, Milton-street, E.C.), displayed their well-known wool underwear. ENDOCRINES, LTD. (distributors for the Harrower Laboratory, 72, Wigmore-street, W.), exhibited pluriglandular preparations under the name of Polycrines. There were over 30 combinations of ductless glands in tablet form ("sanitablet"), every dose being enclosed in an airtight damp-proof envelope. Among new preparations are Sol. Placento-Luteum Co., for use in the vomiting of pregnancy, while attention was also particularly called to Adreno-Spermin Co. for neurasthenia; Pan Secretin Co., for diabetes; Thyro-Ovarian Co., for dysmenorrhœa; and Gonad Co. for rejuvenation. Many of the preparations are put up in ampoules for hypodermic injection. This firm presented free to medical men a 300-page book, "A Manual of Pluriglandular Therapy."—Organo-therapeutical products were also shown in large variety by the BRITISH ORGANOTHERAPY CO., LTD. (22, Golden-square, Regent-street, W.). Among others noted were the Lymphoid Compound and Lymph Serum, pluriglandular preparations which have been used in nervous disorders resulting from the war and otherwise and in securing the rejuvenation of elderly people; extracts of the brain and spinal cord; Corpus Luteum Extract; Eukinase, prescribed in the treatment of intestinal indigestion and chronic constipation; Gastric Mucosa Extract, for gastric dyspepsia; Hepatic Extract, for liver torpor; and Lymphatic Gland Extract, for the treatment of adenoids without operation. The preparation Hæmatothyroidine was also shown. This is employed in the treatment of exophthalmic goitre, as well as Saccharomycin, an isothermal, isotonic, and living yeast specially prepared for medical use.—ARMOUR AND CO., LTD. (Queen's House, Kingsway, W.C.). At this stall a large selection of Endocrines were shown in the form of desiccated powder, tablets, capsules, liquors, and hypodermic solutions. Digestive ferments of all kinds are manufactured in the Armour Laboratories in Chicago, as well as surgical catgut and such specialties as glycerine and extract of red bone-marrow.

The GARDEN CITY PURE FOOD CO., LTD. (95, Westminster Bridge-road, S.E.). The Soya Double Cream, Soy-Yeast, Soya Biscuits, and Soya Flour exhibited by this firm are primarily intended for diabetics, and there is an entire absence of starch or sugar in their composition. The Double Cream and Soy-Yeast are in powder form and are easily converted into food drinks. By a special process the unpalatable flavour of Soya preparations has been greatly modified and the products should make a useful addition to diabetic diet.—MEAD'S INFANT DIET MATERIALS (Distributors, Brooks and Warburton, 40/42 Lexington-street, W.). The Dextri Maltose and other infant diet materials prepared by this firm are intended to be prescribed by a medical man, consequently no directions are printed on the containers. The foods include Mead's Casec, used in the preparation of protein milk for the treatment of fermentative diarrhœa; Mead's Powdered Protein Milk with lactic acid; Mead's Certified Cod-liver Oil; and a reconstructed milk powder, Re-co-lac, a breast-milk substitute.—SAVORY AND MOORE, LTD. (143, New Bond-street, W.), prominently displayed their well-known food, which can be prepared to approximately resemble mothers' milk in composition, together with their peptonised milk preparations.—THERAPEUTIC FOODS CO. (Energen Works, Bridge-road, Willesden, N.W.) prominently exhibited their starch-reduced foods standardised for use in dietetic treatments with constant proportions of carbohydrate and protein. These consisted of bread, biscuits, and flours, as well as cocoa essence.—PRIDEAUX'S PURE CASEIN AND LIFE FOOD CO., LTD. (Southwark-street, S.E., and Motcombe, Dorsetshire), exhibited dried full cream milk prepared entirely from new milk under hygienic conditions.—COW AND GATE MILK FOOD (Cow and Gate House, Guildford, Surrey). The product of this firm is manufactured by the West Surrey Central Dairy Co., and is also made in Dorset and Somerset from the milk of prize herds. The process of manufacture eliminates all contamination, and it is claimed for the food that it produces in infants results identical with those of healthy breast milk.—GLAXO DRIED MILK PRODUCTS (56, Osnaburgh-street, N.W.) showed their various forms of dried milk, Glaxo Malted Food, Glax-Ovo, and their Diabetic Milk Food. Prescription (Humanised) Glaxo was also made a prominent feature of the exhibit; and Ostelin, a high concentration of the antirachitic unsaponifiable fraction of cod-liver oil, called forth many inquiries. The Maltine Manufacturing Company's products have now been taken over by this firm.—HOOKER'S MALTED MILK (Thew Hooker and Gilby, Ltd., Buckingham). This well-known preparation, which is completely soluble in either hot or cold water, is quickly prepared, and is of use both in sickness and health.—HORLICK'S MALTED MILK CO. (Slough, Bucks). This is also a well-known preparation which had a prominent display. — TRUFOOD, LTD., CREAMERIES (Wrenbury, Cheshire; offices, Lever House, Blackfriars, E.C.), showed their Humanised Trufood, which closely approximates to breast milk; Trufood Full Cream for use from 9 months onwards, for nursing mothers and for invalids; and Secway, a pure, sweet whey powder which can be used as the basis of feeding in gastric disorders, even in the case of young infants.—S. GUITERMAN AND CO., LTD. (35/36, Aldermanbury, E.C.), exhibited Cereal Meal, a food whose object is to produce normal daily intestinal evacuation; BRUSSON JEUNE AND CO. (311, Gray's Inn-road, W.C.) Gluten breads and foods for diabetes, obesity, gout, indigestion, rheumatism, and invalid dietaries; A. C. FINCKEN AND CO. (197, Great Portland-street, W.) H-O Quick Cooking Oats; and SISTER LAURA'S INFANT AND INVALID FOOD CO., LTD. (Springfield Works, Bishopbriggs, Glasgow), a food for infants and invalids.—CADBURY BROS., LTD. (Bournville, Birmingham), supplied to visitors cups of their delicious beverage and a book of useful recipes for making chocolate cakes and sweets.

(To be concluded.)

BUCHAREST.

(FROM OUR OWN CORRESPONDENT.)

Reform of the Workmen's Compensation Act in Roumania.

THE Minister of Public Welfare has delegated Dr. George Cimponariu, the director of the central "sick club," to find out how unification of the sick club system may be accomplished, as the States recently incorporated into Roumania—namely, Transilvania, Bessarabia, and Bukovina—have each a different system, though in Bessarabia the treatment of workmen, both from a social and from a medical point of view, is very primitive. The most perfect system is the Transilvanian (formerly instituted by Hungary), and on it the new scheme will be modelled. Dr. Cimponariu says that the most important task of the sick club will be not only to give temporary help to the patients, but also to exercise medical control over all industrial undertakings and factories, and thereby combat the industrial diseases. The protection of workmen against tuberculosis will also claim attention. Mothers will be granted a considerably greater support than prescribed by the law. Under the new scheme a working mother will be granted a holiday at the time of her confinements, commencing four to six weeks previous to the event and continuing for eight weeks thereafter. Infants will be under medical supervision up to a certain age. In the larger factories day homes will be established where working mothers can feed their babies. It is unfortunate that no satisfactory method has as yet been suggested for protection against venereal diseases, which claim victims among the working class. According to recent statistics, every workman loses, on an average, 26 working days in a year on account of venereal diseases. The Central Workmen's Insurance Offices have also planned the erection of sanatoriums, although the present low rate of exchange prevents building. For this reason contracts were made with various private sanatoriums for a certain number of beds.

The Teaching of Roentgenology.

The study of roentgenology has for some time been compulsory in every university in Roumania, although students were not obliged to pass an examination in it. Recently, however, examinations in that subject, both theoretical and practical, have been made obligatory. If a student fails he has to continue the subject for two seasons. Coincidently with this ruling, all university clinics have been furnished with X ray apparatus of the transformer type, both for diagnostic and therapeutic purposes, and also the application of "deep therapy."

Medical Certificates for Marriage.

After the introduction of many medico-social institutions, as, for example, the nationalisation of the medical treatment of workmen, the establishment of free venereal and tuberculosis clinics in every large town, the granting of State support to the victims of industrial accidents in cases where the employers have gone bankrupt, the Government sent out to various countries a commission to study the different methods of controlling the health of couples intending to marry. The commission recommends the method practised in certain of the States of North America. It proposes to forbid all matrimonial offices to wed couples unless they produce a medical certificate (from any physician they may choose), the certificate to be signed by a sanitary officer, who has the right to examine the parties if any doubt arises as to the validity of the certificate. The discussion of this question in the daily papers is prompting intelligent fathers to demand, before consenting to the marriage of their daughters, that the suitor produce medical evidence as to his general health and freedom from venereal disease.

The Price of Alcohol Raised.

The pharmaceutical papers of Roumania are lamenting the new regulations regarding the alcohol monopoly, which extend the general tax on alcohol to alcohol used medicinally, which has hitherto been exempt. The manufacturers of perfumes and cosmetics succeeded in getting the tax reduced for their use, in order to protect this industry, which lately, owing to the intensive culture of roses and the manufacturing of rose-oil, has grown by leaps and bounds. Pharmacists are allowed to use a cheaper alcohol for tinctures and fluid extracts, but only if the process of preparation is done under the supervision of an official. The regulations provide for new officials for this purpose, and a medical paper, the *Viata Medicala*, remarks that the number of pharmacists will dwindle as the result of this measure, and consequently the manufacture of tinctures, and so forth, will fall into the hands of the manufacturing chemists, as was the case in Germany, whence this new regulation was copied.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Medical Men in the Senate of the Irish Free State.

THE final results of the election of 19 members of the Senate were announced last week. Two medical men are among the successful candidates. One of these, Mr. H. S. Barniville, was a previous member of the Senate, having been nominated one of the original Senate by President Cosgrave in 1922. He is one of the surgeons to the Mater Misericordiæ Hospital, Dublin. The other medical man who has been elected is Sir Edward Coey Bigger, formerly medical member of the Local Government Board for Ireland and chairman of the Irish Public Health Council. Sir Edward Bigger has always been an ardent influence in matters of health. He was one of the members of the Vice-Regal Committee on the Poor-laws which reported nearly 20 years ago, and in 1919 he was chosen as chairman of the Irish Public Health Council, which subsequently sent in a report recommending many drastic changes.

Royal Academy of Medicine in Ireland.

The annual elections at the Royal Academy of Medicine took place last week. Sir James Craig remains in office as President, and Dr. T. P. C. Kirkpatrick as general secretary and treasurer. The following, with representatives of the sections, constitute the General Council: Dr. A. F. Dixon, Sir J. W. Moore, Dr. T. G. Moorhead, Dr. G. E. Nesbitt, Dr. R. J. Rowlette, and Sir W. I. de C. Wheeler. The following Presidents of Sections have been elected: Medicine, Prof. F. C. Purser; Surgery, Mr. R. C. B. Maunsell, President R.C.S.I.; Obstetrics, Dr. D. G. Madill; Pathology, Prof. J. W. Bigger; Anatomy and Physiology, Dr. C. M. West; State Medicine, Prof. V. M. Synge.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdrs to be Surg. Comdrs.: G. S. Harvey, W. H. Murray, and G. H. Hayes.

ROYAL NAVAL VOLUNTEER RESERVE.

A. J. Gilbertson, late Surg. Lt.-Comdr., re-entered as Surg. Lt.-Comdr.

ROYAL ARMY MEDICAL CORPS.

Maj. T. W. Stallybrass retires on ret. pay.

Capt. F. K. Tomlinson retires, receiving a gratuity.

Capt. N. Cantlie is restd. to the estabt.

REGULAR ARMY RESERVE OF OFFICERS.

Col. R. J. Blackham, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

ROYAL AIR FORCE.

The undermentioned Flying Officers are promoted to the rank of Flight Lt.: T. V. O'Brien and F. W. G. Smith.

INDIAN MEDICAL SERVICE.

The King has approved the promotion of the following officers: Majs. H. W. Pierpoint, W. D. H. Stevenson, H. P. Cook, P. S. Mills, W. J. Fraser, C. A. Godson, R. H. Lee, F. P. Warwick, W. A. Mearns, and R. G. G. Croly to be Lt.-Cols.

Capts. G. H. Mahony, G. Covell, W. R. Stewart (Bt. Maj.), Venkatasubba Mahadevan, and A. C. L. O'S. Bilderbeck to be Majs.

Capt. H. J. Rice is confirmed in his rank.

Capt. Vasantrao Dinanath Madgaokar relinquishes his temporary commission.

In the Legislative Assembly at Simla on Sept. 2nd, in spite of Government opposition, a resolution was carried that all further recruitment to the Indian Medical Service shall henceforth be only by an open competitive examination held simultaneously in England and India from the year 1926.

Captain E. R. Daboo officiates as Civil Surgeon, Sadiya, Assam. The Executive Council of Lucknow University has elected Major H. Stott to represent the University on the Medical Council of the United Provinces of Agra and Oudh. Major T. T. H. Robinson, D.S.O., has been appointed Civil Medical Officer, Ranikhet, vice Lieut.-Colonel W. C. Croly, D.S.O. On return from leave, Dr. W. G. Wince and Dr. C. H. Mason have been re-posted as Civil Surgeons at Wardha. Captain P. Verdon has been appointed District Medical Officer at Guntur. Major B. Gale has been posted to Ambala. Dr. Kali Charan Dube has been appointed Medical Officer of Health at Meerut, vice Dr. Nand Lal Varma, who reverts to the Provincial Medical Service. Colonel H. O. R. Browne Mason officiates as D.D.M.S. Western Command, vice Major-General S. F. St. D. Green, who has proceeded on leave.

THE MOTOR SHOW AT OLYMPIA.

OCT. 9TH–17TH.

(BY OUR MOTORING CORRESPONDENT.)

THE nineteenth annual International Motor Car Exhibition, held by the Society of Motor Manufacturers and Traders, which closes to-day (Saturday) has fulfilled the expectations of everyone. The motor show has now been for a long time a national institution, and thousands, not only of the trade nor even of motor-car owners, but also of the vast car-less public, look forward to it eagerly, for all the cars they have recognised and coveted stand here in the glory of their show finish, open to be inspected and admired, opened and shut, sat in, and in imagination driven at great speed along straight black roads. Many makers have their engines sliced open, so that we can see for the first time exactly how sleeve valves or overhead camshafts work, and such anticipated wonders as the new six-cylinder Bentley, the "New Phantom" Rolls with six brakes, and the 25–70 sleeve-valve Vauxhall are at last realised.

A Retrospect.

The habitual visitor to Olympia always feels, the moment he enters the building, that he has come home. Except that it is half as large again, there is no apparent difference between the show to-day and the show of 1912. A few new names appear on the great white panels over the stands and the lights may be brighter and more numerous. The noise of the horns in the gallery is gone for ever. But the stands and the cars on them are neither larger nor more splendid than they were then, and unless one looks very closely neither machinery nor bodywork seems to have altered in anything but small detail. Actually, however, the change is vital. The doctor who wanted in 1912 to spend £200 on a car was tied down to about half a dozen makes, nearly all heavy and underpowered. There were no electric starters and electric lights, and none of those side-screens and screw-down hoods that make any open car waterproof in three minutes to-day. Most of the accessories were extras, and the tool outfit supplied with the car was heart-breaking. Next year came a rush of 10 h.p. two-seaters that, led by the far-sighted experiment of the Morris-Cowley, grew into eleven-nines after the gap made by the war, and then a year or two later into thirteens and fourteens, while a fresh crop of sevens, eights, and nines with incredibly powerful engines sprang up in their place.

There is no comparison at all between the Talbot or Gwynne 8, or the Austin or Jowett 7 of to-day and the A.C. and Singer 10 or the Morris-Oxford 9 of 1914, and the reason is the immense increase in knowledge that the war gave to the designer of all kinds of internal combustion engines, and in particular those of aeroplanes. A glance through a buyers' guide will show that power is now quoted in two figures—e.g., 8–18, 15–50, 20–60—the first being the taxable power and the second the horse-power the engine actually gives at its best speed. It is not an exaggeration to say that, size for size, engines are three times as powerful as they were before the war, and a glance at the Austin 7 or the Aston-Martin 11 shows that this improvement is not confined to engines with overhead valves, though more and more makers are fitting them.

1925.

The power-price of most cars is now back again approximately to what it was in 1914 and is not likely to go any lower, but it now includes a perfect lighting and starting set, an "all-weather" equipment that closes the car in almost as completely as a permanent top, a whole shop-full of accessories like mirrors, dashboard-lights, screen-wipers, luggage grids, clocks, air-stranglers, and safety-locks, and very often front-wheel brakes as well. The competition of the cheap American cars has provided the chief impulse to this development, but our manufacturers have responded to it in a way that does the country great credit. The Standard Motor Co. gave us the all-weather screening and Morris Motors took the lead in supplying the cheap car with all the accessories of the expensive one, especially one that is worth more than all the others put together, the system of greasing the whole chassis with one gun that fits on to special nipples.

Four-wheel brakes were fitted on the Argyll and the Isotta-Fraschini nearly 20 years ago, but only became popular about the beginning of last year—chiefly because of the way in which they contributed to the success of the Peugeots in the Grand Prix the year before. There is now hardly a car on which they cannot be fitted if required, and many have them as standard. They are excellent if they are properly adjusted, but apt to be highly dangerous if they are not. The front wheels must brake together, and most people prefer them to come on later than the back.

Returning to cars in general, however, we see that the 11·9 h.p. of 1½ litres, so general three years ago, is losing its hold on popular favour. There are now a great many twelves, such as the Morris-Oxford, Hampton and Bayliss Thomas, and fourteens and fifteens like the new Triumph, the Lagonda, and the Hillman, that are the descendants of former eleven-nines. The new 2½-litre car is very nearly the old family 15·9 that was so popular once, and it is most pleasant to see this convenient size reappearing. Five people could always be sure of finding in it ample room for their feet and a certain amount of luggage as well.

Two Examples of Modern Practice.

A very good example is the *Beardmore* 16–40 h.p. These manufacturers are well known for their excellent aircraft engines and their taxis, and the new 16–40 will not fail to increase their reputation. They make a saloon for £550 in which there is that rarest of things, a really comfortable driving seat with all the controls in reach on the right-hand side. The pedals are adjustable and a wheel-base of 10 ft. 6 in. gives ample leg room. All these cars have front wheel brakes and stand close comparison with the £1000 class in every way. There is no better value to be found in the whole show.

The *Triumph* 15–50 h.p. is a similar model, but a little smaller. Triumphs were the engineers who rescued the British motor-bicycle from extinction in the first decade of the century; a year or two ago they produced one of the finest small cars in the country, and have now passed on to a 2-litre chassis. It would be very hard to beat the open five-seater at £395 or the four-door saloon at £495 or £460, but it is a pity they only fit three gears. The front wheel brakes are hydraulic, and every conceivable gadget is fitted, including a very good tool kit.

Tool Kits.

The result of a careful inspection of tool kits at the show was reassuring. Even the very cheap cars now carry a modest but perfectly adequate set, and the makers of the more expensive ones take care that their jacks and pumps shall be up to the standard of their cars, which they did not always do a few years back. Even so, there are very few who include a box of the spare nuts and small parts, the absence of which will sometimes keep a car in dock for a week. It was surprising, too, in how few cars a six-foot person could stretch his legs and at the same time reach gear- and brake-levers without leaning forward. Hand-brake levers are much longer and better placed than they were; the ones on the Lancia, Darracq, and Talbot pull upwards from the floor and give a tremendous leverage, but most of those on the right-hand side are far too near the coachwork. The A.C. has an excellent one, and nearly all the American cars are very good. One Italian car has a spade handle, and it is a pity more makers do not copy this, as it gives a natural grip, particularly to the left hand. On the whole, though, makers of small cars are inclined to omit the

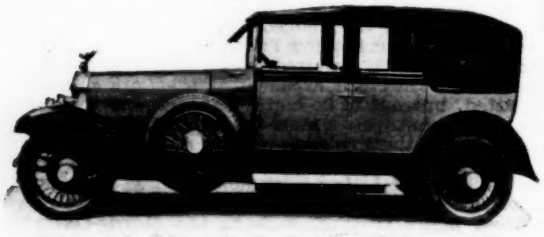
extra four inches which make all the difference, especially the Morris, where the hand-brake is the one blot on an otherwise beautiful control system.

Coachwork.

Body-work as a special industry remains at the same level of perfection.

Barker's Cabriolet de Ville has a folding roof that will cover all the seats or the back only as required, and will fold up completely in fine weather. As its

FIG. 1.



Rolls Royce. Body by Barker.

protection when fully closed equals that of a saloon, it combines the advantages of all types of bodies. A splendid specimen of their work is on the large Rolls-Royce (Fig. 1) in blue and black, with upholstery in plain light cloth and a folding arm-rest.

Mann, Egerton and Co., Ltd., showed a 14–40 Vauxhall saloon and a 25–85 Daimler with their own four-door saloon body painted powder blue. An interesting exhibit was a 30 h.p. Minerva, enclosed drive limousine, the body staged in an unfinished state, from which could be judged the excellence of the coachwork before it was painted.

Offord and Sons, Ltd., exhibited among other cars a 14 h.p. Crossley saloon landaulette.

Windovers, Ltd., had fitted another of the Rolls exhibit, a 20 h.p. with a six-seater Brougham Limousine (Fig. 2) in black—a most handsome town car.

Belgravia Coachworks had a very attractive 3/4 Landaulette on a 14 h.p. Bean chassis and a saloon Limousine with six seats on a 17·9 h.p. Renault.

Coachbuilders are tending to make more use of the new scratchproof cellulose compositions and safety glass. Most of the bigger saloons have four doors, and windows are almost invariably raised and lowered by cranks or other mechanical devices. V-fronts are holding their own, and larger windows are fitted at the backs of closed cars, a most necessary modification, as anyone will know who has ever tried to reverse a large covered car into a narrow garage.

The Large Cars.

Undoubtedly the chief joy of Olympia for the ordinary person is to examine closely, and perhaps to sit in, the huge expensive cars that he covets on the road but never hopes (and if he is wise never really desires) to possess. *Rolls-Royce* had their "New Phantom" with the improved engine and the six brakes system, *Daimlers* had their 35/120 sleeve valve, but the most interesting of all was the new *Bentley*.

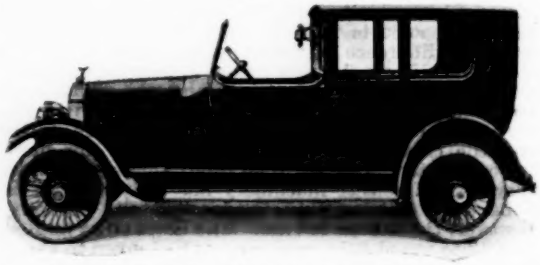
Bentleys are the only manufacturers that have ever stepped straight into the first rank with a new car, and since 1922 their name has become as familiar as that of Rolls-Royce. The car was the famous 3-litre 17·9 h.p. with 16 overhead valves, which would do 75 miles per hour with a saloon body and was incomparably finer than anything of its size in existence. They have now surpassed themselves with a new six-cylinder machine (Fig. 3) of 6½ litres, with 24 overhead valves, taxed as 38 h.p., but developing well over 100, which, if it maintains the standard of the earlier model, will be unique, as the life of the small Bentley is almost endless, and it is designed to need no attention. The most interesting feature of the big one is the camshaft drive, which consists not of gear wheels, but of two triple crankshafts connected by three pairs of stout tubes, which work in a large conical tunnel behind the engine. To counteract expansion was the chief problem, and it was solved by fitting spring bearings to the connecting rods at each end. The engine is mounted in front on a fabric pad and behind on two blocks of rubber, which insulate it from the frame; a new clutch design is fitted and the steering gear is redesigned to allow for the extra resistance of low-pressure tyres. It is a marvellous car.

Another of the most attractive large cars is the eight-cylinder Packard from America, a straight eight with the generator, starter, and carburetter all standing out from the clean run of the cylinder casting and extremely accessible. The engine, which is very long, is in the neighbourhood of 40 h.p. by our rating. Flint, Chandler, and Kissell are other large cars that represent the best of the American market.

Cars for the General Practitioner.

Now that makers are going in so much more for closed bodies, and that all cars are so reliable and easy to look after, the medical visitor will find that 85 per cent. of the cars shown would suit him perfectly.

FIG. 2.



Six-seater Brougham Limousine by Windovers, Ltd.

Even if he can only afford a maximum of £200 he can choose between a good dozen examples, such as Morris-Cowley, Jowett, Baby Austin, Briton, Citroën, Clyno, Peugeot, Chevrolet, and Trojan, and if he has £500 he can take his pick of half the show.

Of orthodox two-seaters and saloons there is no end, and quite a number of makers still include the coupé in their standard range, but this wide two-seated body with its high bulwarks and solid folding top and carriage-windows, so suitable for the doctor who drives on winter nights, is showing signs of diminishing popularity. It is probably being ousted by the small saloon. There is one beautiful two-seater of a rather "sporting" type, however, with a semi-coupé top, that would be just the thing for a practitioner who wanted a car rather faster than usual but still suitable for everyday (and every night) practice. This is the *B.S.A.* 16 h.p. six-cylinder sports two-seater (Fig. 4). The body is cream-white, with red wings and mouldings, and the hood folds down and clamps to the raked wind-screen. There is ample room under the "quarter-deck" for spares and luggage and one passenger in the dickey. The engine is the 16 h.p. sleeve-valve Knight-Daimler, which is practically inaudible and extremely powerful. The car should do 65 miles per hour easily. Other bodies on this chassis are the open five-seater at £550 and two saloons at £550 and £600. It is really a cheaper Daimler, and so is extremely good.

Another of these small six-cylinder cars is the *A.C.* 16/40 h.p. This car is unique in that it has a 2-litre engine in a chassis only 2 cwt. heavier than their 4 cyl. 12 h.p., and so is exceptionally lively. One model that looked pre-eminently suited for a doctor is called the "Aceca" (Fig. 5) and costs £560. A disadvantage of the ordinary coupé is that it is very hard to see out of, and the Aceca body with the hood down is just like an ordinary very comfortable two-seater. The wind-screen is raked, however, with two

triangular side-pieces, and the driver can pull the hood over and lock it to the top of the screen with the car on the move. When the windows in the doors are pulled up the protection is that of a coupé. This ingenious body is also fitted to the four-cylinder chassis at £495. There is a great variety of bodies to choose from between the cheapest A.C. at £300 and the racing four-seater at £800.

The *Lancia* "Lambda" is the only foreign car for which there is no British equivalent. It is daringly unorthodox, being built very low down on a pressed steel frame with body and chassis in one piece, like a destroyer. The naval reminiscence is helped by the casing of the driving-shaft that runs the whole length of the seating-space, and in fact by all the low straight lines of the car, the lift of the scuttle, and her great liveliness. There are several improvements since last year. There are now four speeds, and the wheelbase has been lengthened on one chassis from 10 ft. 2 in. to 11 ft. 2½ in. The low seats are amazingly comfortable and the controls are exactly right. The makers claim 70 miles per hour for it. The shorter saloon costs £725 and the longer, with two extra folding seats, £800. Both saloons have a top which will come off and leave the car open for the summer. There are double Hartford shock absorbers on the back springs; in front are the Lancia vertical springs that contain their own dampers. The car is exceptionally light on fuel and tyres.

In the less ambitious class there are so many possibles that we are reduced to an invidious choice. One or two stand out slightly from the rest, and among them is the *Hampton* 12 h.p. coupé at £330, four-wheel brakes £345. It has a wide double dickey, a single-handed hood, and patent window lifts; the driving position and hand-brake lever are really comfortable. Screw-down bonnet clips of the kind that the Citroëns introduced into the country are a sign of the careful designer, and the dashboard has the now almost universal "cubby-hole" which was first started by the Standard makers.

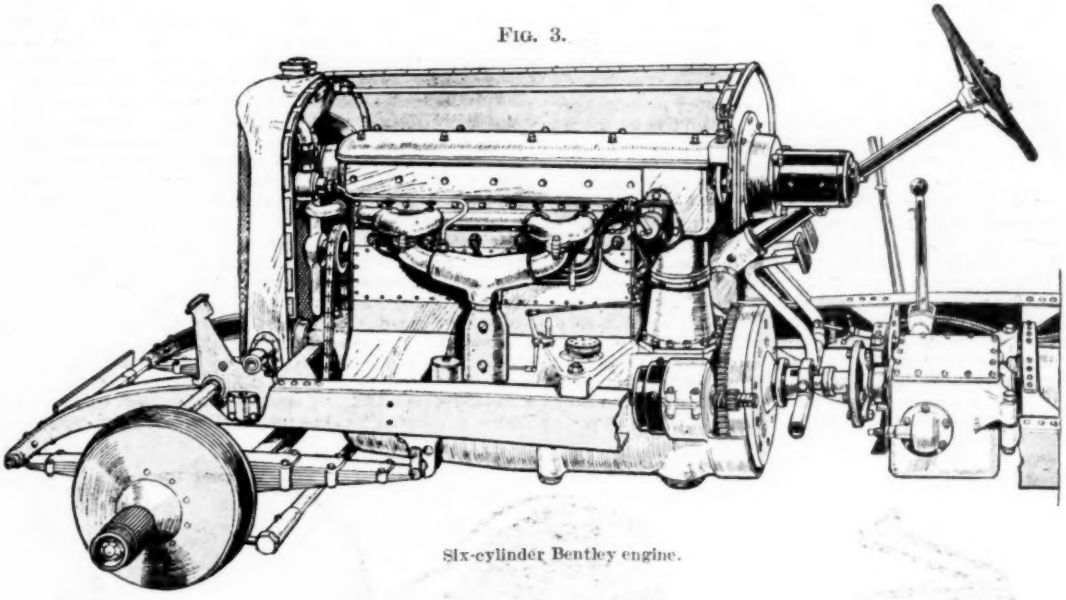
A Scotch car that has fully proved its worth is the *Galloway* 12. The firm is a daughter of Arrol-Johnstone's, and fully sustains the parent's reputation. The engine has overhead valves of a new design that makes it exceptionally silent, and unlike most overhead valve engines it does not become noisy with use, which can be said of very few others. Four speeds are fitted, with right-hand change, and the speed and brake levers are well apart. Four-wheel brakes are £10 extra; the two-seater is £265 and the saloon £360.

The *Windsor* 10–15 coupé, by James Bartle and Co., Ltd., at £465, is another first-class car for the doctor. It has ample locker and luggage accommodation, a leather hood, and four-wheel brakes.

The *Essex* coach at £295 is remarkable value.

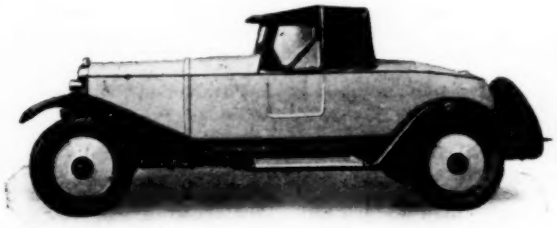
Wolseley Motors, Ltd., have confined themselves this year to three models, an 11/22, a 16/35, and a 24/55. The small car is even better than the famous 10, but we miss the 14, which covered itself with glory in Major Forbes-Leith's drive to India. The 11/22 two-seater costs £235, with four-wheel brakes extra.

FIG. 3.



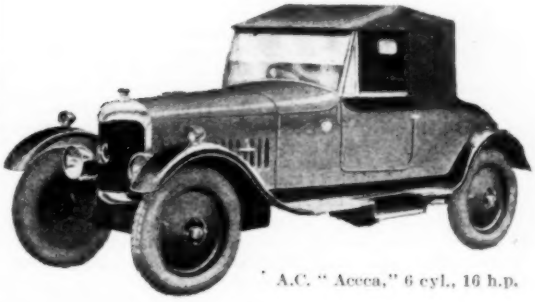
Six-cylinder Bentley engine.

FIG. 4.



16 h.p. B.S.A. Sports two-seater.

FIG. 5.



A.C. "Acca," 6 cyl., 16 h.p.

Low-priced Cars.

For the many who want a reliable car to get about in at the lowest possible price, Olympia caters better this year than it ever has before.

The Leyland *Trojan* 10 h.p. is very well known now, with its clean simple lines and its solid tyres and chain drive. The springing is literally better than that of any other car on the road, and the two-stroke engine very economical. The ordinary model at £125 represents the cheapest motoring there is, but the firm also sell a coupé with a detachable top, fitted with pneumatic tyres, at £158, that the country practitioner would find an ideal means of transport. There are no sliding gears, which will appeal to the beginner.

The *Peugeot* 7·12 is a remarkable little French car with a great name. The two-seater costs £150 and the smart weatherproof cabriolet £185. The makers have been daring enough to revert to the straight-through gear-change, which many drivers prefer to the gate. The car can be thoroughly recommended.

The *Morris-Cowley* 11·9 at £162 10*s.* has Gabriel shock-dampers, spring gaiters, a grease-gun system, electric lighting and starting, a dashboard light, and a radiator thermometer, and for £180 front-wheel brakes. It is unquestionably the best-equipped car of its price on the road, and is certainly one of the sweetest to drive. Its only disadvantages are that its brakes are nearly always noisy and the hand-brake lever is too short. The Morris-Oxfords are rather larger, and are very fine cars indeed; they cost from £90 to £130 more.

ACCESSORIES.

A tour of the galleries this year, though very instructive, showed hardly anything new, but that is largely because everything that a motor-owner could conceivably require, and plenty that he could not, is already obtainable. The owner-driver is not as a rule very interested in paint, preferring to leave such a difficult subject to the coachbuilder, but *Robbialac* is always a standby to him, as it requires very little knowledge to apply and dries quickly and well. It is a most useful enamel for covering up odd scratches and dents in mudguards. The *Carmaloid* firm exhibited their now well-known celluloid enamel, which is being increasingly used by the makers of bodies. It is non-inflammable when dry and very elastic and tough; its polish improves with wear. It has also the great advantage of drying in a single hour at 70° F.

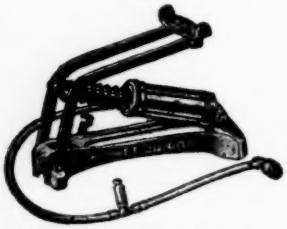
Tyres, Jacks, Pumps, Shock-absorbers.

The "balloon" tyre increases in popularity, which is not surprising, for it enormously adds to the comfort of any car, besides improving its appearance. Most tyre makers now market a full range of low-pressure and medium-pressure tyres, especially *Dunlop* and *Michelin*, whose products are better and more widely used than ever. The owner of a car with these tyres, however, must be very careful indeed to keep his pressure up to the figure recommended by the maker, since if they are under-inflated they are liable to roll off the rims when taking a bend at speed, which may cause a very serious accident. He can completely insure himself against mishaps of this kind for 6*s.* 10*d.*, and a little care, by purchasing the Schrader gauge. It is a small nickel tube about the size of the little finger, which with its adaptor will fit any valve. When it is pressed against the opening a black graduated plunger shoots out from which the pressure is read. To possess it is to save ten times its cost every year at least.

The buyer of a car with low-pressure tyres should make sure that his jack will lift the car the extra two inches or so when the tyre is flat. If it will not he should throw it away and buy the *Dunlop* "Double-Lift" jack, which besides being extremely well made is only 6 in. high when closed. The central pillar consists of a threaded bar within a tube threaded inside and out, which gives a quicker lift than the simple type. The gearing is completely enclosed and the top swivels; the base is broad enough to stand firmly on any surface.

It will save the doctor a great deal of valuable time to make sure he has a good pump. Most men hate the strenuous work of inflating tyres with the ordinary push-and-pull type, and there are several extremely good foot-operated pumps in the show. The two best, which are of similar design, are made one by Dunlops and the other by William Turner and Bro., Ltd., of Sheffield. The latter is called the *Kismet-Duplex* (Fig. 6), and costs 58*s.* 6*d.* in its box. There is a smaller model at 40*s.* A high-pressure cylinder works inside a low-pressure one; air is passing into the tyre all the time, and the work, besides being easy, is cut extremely short, since the pressure is increased about 1½ lb. by each stroke. The valve connexion is of a "universal" push-on type (which, by the way, should be on all pumps. Many designs are marketed by different firms, and cost 2*s.* or 3*s.*).

FIG. 6.



The Kismet patent foot pump.

FIG. 7.

The Smith saloon spotlight.

Shock Absorbers.

The great elasticity of balloon tyres causes an uncomfortable bounce unless the recoil of the spring is damped by some form of shock absorber. There are many good makes, but of these the most generally used are the *Gabriel Snubber* representing the counter-spring principle, and the *Hartford* representing the friction principle. The Gabriel, shown by *Brown Bros.*, consists of a coiled spring in a box on the frame, attached to the axle by a strip of stout webbing. It is extremely efficient, and is fitted to all Morris and Buick cars.

The Hartford, of *T. B. Andre and Co., Ltd.*, London, is so widely known that it hardly needs description. It is shaped like the hind leg of a grasshopper; one arm is bolted to the frame and the other to the axle. Double models are made for racing cars, of which hardly one exists without them. The damping effect is finely adjustable. This fitting makes all the difference to the comfort of a touring car, and adds at least 20 miles per hour to the maximum speed of a racer. For smaller cars it costs between 12 and 15 guineas to fit.

In these days of spare wheels and cord tyres a driver does not often need to mend a tube on the road, but it may easily happen to a country practitioner that he has left a wheel at a garage to be mended and

then punctures or bursts one of the others. The only alternative to abandoning the car is to carry a box of *Patchquicks*, which are stout patches that are applied with a special solution called "Fix," like patches on a bicycle tyre. The presence on the car of a box of these patches may save the loss of a half-day's work or more. Always carry valve spares on the car.

Tyre Insurance.

The Lancashire and General Assurance Co., Ltd., 8, Bucklersbury, London, E.C., have a scheme of tyre insurance that will be welcome to many motorists. They insure against bursts at a rate of 6*d.* per £ value. Coupons are sent on application. The scheme applies only to British-made tyres, which must not have run more than a week.

The *Parson's Non-Skid Co.*, in addition to their unique chains which are the only counter to thick mud or snow, showed a neat "Twinbar" bumper at £3 5*s.*, for front or back.

The Industrial Rubber Products make neat india-rubber grips for the steering-wheel at 6*s.* 6*d.*, and *Moseley* a pneumatic driving-cushion, the "Float-on-Air," in all sizes, from 47*s.* 6*d.*

Lights.

C. A. V., *Lucas*, *Rotax*, and all the well-known makers were well represented.

The *Marvulc Accessories Co.* showed a very useful dimmer switch called the "Courtesy," which has the following advantages. It is indestructible and will not burn out, can be used on any system, will give any degree of dimming or switch off entirely, and can be fitted in any position on the car. It costs 15*s.* 6*d.*, and is most convenient on a spoke of the steering-wheel.

S. Smith and Sons, of Great Portland-street, showed among their great range of accessories two very useful lighting devices. The *Saloon Spotlight* (Fig. 7) fits through the wind-screen pillar and is directed without lowering the window by turning a milled knob that projects inside the car and revolves a small friction disc one side of which makes contact with the body of the lamp.

The *Smith Safety Signal Mirror* has a transparent two-ended arrow in the glass. By moving a switch on the dashboard either end will glow red, according to the direction in which the driver intends to turn. Pressure on the foot-brake signals "stop" or "slow" by lighting both heads of the arrow.

Horns.

Alfred Graham and Co., who have fitted our warships for years with loud-speaking telephones, have marketed a new electric horn called the "Sparton S.O.S." The note, although not offensive, is high-pitched and arresting, and extremely loud—the kind of horn that wants a dimming-switch for town.

Klaxon, Ltd., in addition to their large and well-known range of alarm devices, sell a model with two notes, for use either in town or country.

A fitting that should be on every steering-wheel is the *Eural* horn ring. It happens continually that a driver wishes to sound the horn, steer, and pull his brake on at the same time, and no simple switch will allow him to do all three. The Eural ring is attached to the spokes of the wheel, and pressure on any part of it sounds the horn; there is no position of the steering hand that puts it out of reach. It is made in five different diameters, and costs from 21*s.* to 35*s.*

Petrol and Oil.

All the leading makers occupied stands gaily decorated with illuminated petrol-supply pumps and coloured cans, and exhibited samples of their fuel and lubricants. There is hardly any bad petrol to be had, but car-owners should be careful to buy only oil with a thoroughly reputable name, such as Castrol (Wakefield's), Shell, Price's, &c. The British Petroleum Co. are the only purely British suppliers of motor fuel. They are the selling end of the Anglo-Persian Oil Company, which has vast wells in Persia and Iraq.

Ignition.

Lodge have a very complete range of plugs, and Smith and Son handle the well-known *K.L.G.*, which was designed originally by the famous racing driver, Kenelm Lee Guinness, and has proved its worth in many races. Both makes are thoroughly reliable.

Simms Motor Units showed several magnetos in action, particularly a slow-speed model which gives an especially hot spark for starting.

Speedometers.

Now that every car is sold with a speed indicator thrown in, owners are probably less interested than they were in descriptions of individual types. There is one so outstandingly good, however, that it would be worth anybody's while to demand it and pay the difference. It is the new Bonniksen Time-Speedmeter (Fig. 8), at £8, from Rotherhams', of Coventry. The Bonniksen speedometer has been known for many years, of course, but the new model is considerably improved. In addition to the two "walking hands," one of which is always steady at the speed to be indicated, there are two small dials, one identical with a clock face and the other like it, but divided into 10 "hours" instead of 12. The first tells the time of actual running and is set by the watch at starting, the second the distance covered in miles. The driver can therefore calculate his exact average speed and know how long he lost in stops. To the careful business-like driver it will appeal irresistibly.

FIG. 8.

Bonniksen time and speed meter.

Miscellaneous.

Ferodo, Ltd., are well known for their clutch and brake linings, and the driver who is determined to make his car as comfortable as he can will be interested in the application of their fabric to the leaves of springs. Besides prolonging the life of the springs it damps out the rebound without spoiling the resiliency. It is known as "Ferodo Spring Interleaving."

Among the various devices for preventing thieves from driving a car off are the *Connaught* petrol tap, which can only be turned on by a special key (*Jenks*, 54, Ebury-street, S.W.), and an ingenious electrical lock called the *Owl*, by *E. T. Riches and Co., Ltd.*, 19, Store-street, W.C. It replaces the ignition switch, and is a small round dial, fitted with a revolving ring on which is an inside pointer. The dial itself is marked like the face of a clock, and the mechanism is set at a particular "starting-time" known only to the driver. The engine can only be started if the pointer indicates this time, and any illicit attempt turns on the electric horn. The makers are so confident of its infallibility that they include a free insurance of £25 against theft, and suggest that its mere presence would deter the would-be thief. The American device of a large scarlet wedge, to lock on to the tyre, seems not to have penetrated Olympia yet.

The *Boyce* radiator thermometer, among other reliable makes, is indispensable to a sympathetic driver. In winter engines are driven too cold as often as too hot, and in conjunction with a radiator-jacket by any good accessory maker this fitting will enable him to maintain the best running temperature. It is also extremely ornamental, as a glance at any Morris-Cowley or Buick will show. The temperature of the water is shown by the height of a red column in a circular glass dial with a nickel frame, like a watch. Similar in appearance is the "Telegauge" petrol indicator, by Picard's, which is designed for tanks filled from the scuttle, and shows the contents in gallons.

The "Easting" rear wind-screen (Fig. 9) maintains its popularity. These cleverly designed screens make all the difference to the comfort of passengers in the back of a touring car, and many makers fit them as standard. The type illustrated is a four-panel screen with four-point suspension. The panels are of highly polished transparent celluloid on tubular steel frames covered with leatherette, and beneath them are large waterproof aprons that completely protect the passengers. The two centre panels hinge back as doors on the outside ones, and the screen can be locked rigid in any desired position. It completely fulfils the cardinal requirements of protection, convenience of entrance and exit, and clearness of vision.

FIG. 9.

The Easting rear wind-screen.

The thought suggested most forcibly by this year's Olympia is that the vast car-less public is going to be substantially reduced between now and next midsummer. What the roads will be like does not bear thinking, but it is much more important that a few more thousand Englishmen will have their lives enriched by the adventure of owning and learning to manage a car of their own, and will enter into the possession of our English roads and the country they open up, than which there are few more valuable possessions.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 3RD, 1925.

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 28; scarlet fever, 2217; diphtheria, 1002; enteric fever, 61; pneumonia, 738; puerperal fever, 59; cerebro-spinal fever, 4; acute poliomyelitis, 15; acute polio-encephalitis, 1; encephalitis lethargica, 43; dysentery, 9; ophthalmia neonatorum, 101. There were no cases of cholera, plague, or typhus notified during the week.

Deaths.—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, 23 from measles, 12 from scarlet fever, 28 from whooping-cough, 51 from influenza, and 23 from diphtheria. There were 126 deaths of children under 2 years from diarrhœa and enteritis, as compared with 173, 220, 219, and 230 in the preceding weeks. In London itself the deaths from diarrhœa and enteritis in children under 2 years numbered 34, as compared with 46, 55, 43, and 38 in the preceding weeks; there were 7 deaths from diphtheria, 3 from whooping-cough, and 9 from influenza.

MEDICAL GOLFING SOCIETY.—The annual autumn meeting of this society was held on Oct. 10th and 11th at Deal by permission of the Royal Cinque Ports Club. The course was in excellent condition. The results of the competitions were: Singles *v.* Bogey: L. W. Bathurst, 3 up; 2nd prize, W. H. Lamplough, after a tie with L. Barrington-Ward. Foursomes *v.* Bogey: G. Norman and H. Wolseley-Lewis, 2 down. Canny Ryall Challenge Cup: H. Apperly after a tie with A. H. Vassie at 75; 2nd prize, Mather Thomson, 76; 3rd prize, N. Fleming and H. Gardiner-Hill, 77.

MEDICAL SICKNESS, ANNUITY AND LIFE ASSURANCE SOCIETY, LIMITED.—The annual meeting of this society was held at the offices of the Company, 300, High Holborn, London, W.C., on Oct. 12th. The Chairman, Dr. F. J. Allan, in his annual address, congratulated the members on the satisfactory report on the work of the society during the past year. He called attention to the fact that, though there was a steady increase in the business, the ratio of expenses had fallen by nearly 2 per cent. as compared with the previous year. Dr. Allan gave a brief history of the society since its foundation in 1883, and in referring to the various policies issued, said that the society was converted into a limited company on a mutual basis in 1920, as hitherto it had suffered from the restriction under the Friendly Societies Act, which limited the amount for life insurance to £300. Since the alteration over £500,000 of new business had been transacted in that branch. Dr. F. C. Martley and Sir William Willcox were re-elected to the board of directors, and Messrs. Harber, Sturges, and Fraser were re-elected auditors.

Correspondence.

"Audi alteram partem."

THE UNIVERSITY OF LEEDS: THE MEDICAL FACULTY.

To the Editor of THE LANCET.

SIR,—The old Leeds Medical School is approaching its century of existence in which a steady progress of development has been marked from time to time by substantial additions to its accommodation. Since 1893, the date of completion of the present buildings, there have been no structural alterations commensurate with the progress of physiology and pathology, the closer coöperation of laboratory and clinical departments, and the increase of the general and special hospitals and the public health organisations, which all add to the obligations and opportunities of service of the Medical School.

The support given by the medical profession to the school in times past was both generous and important. The example of former days is our justification, at this critical time of need for expansion, for making a special appeal on behalf of the school.

The University is fully aware of the value of the Leeds Medical School, and desires very earnestly to promote the usefulness of this faculty with no less care and energy than it devotes to the development of the faculties of arts, science, and technology. For this reason the urgent needs of the Faculty of Medicine have been acknowledged by the University; and in making its general appeal to Yorkshire it feels that the greatest assistance may be derived from the spirit of the profession which by its own endeavours raised a medical school from casual meetings in the back room of the old dispensary to a position of respect and eminence in the medical world.

At the present time there is neither accommodation nor equipment to permit the University to set men on to meet the demands for investigation and service required by the community. Even the present staff, honorary and otherwise, are prevented from giving their energies and enthusiasm to current problems by this lack of facilities. It is earnestly hoped that the members of the profession will give all the assistance in their power towards the object of the University which is to make its medical departments capable of acting as a fruitful and useful centre of research and information and equal to their obligations to our large industrial population.

We are, Sir, yours faithfully,

DEVONSHIRE,
Chancellor.

J. KAY JAMIESON,
Dean of the Faculty of Medicine.

The University, Leeds,
October, 1925.

OCCUPATIONAL THERAPY.

To the Editor of THE LANCET.

SIR,—A movement is now actively on foot for the promotion and coördination of all forms of curative handwork in this country. In July last Mr. Thomas Kidner, President of the American Therapy Association, was entertained at the Lyceum Club by men and women in the medical and educational world, when he gave an account of the growth and results of the work of that Association during the six years of its existence. The hope was expressed that an association on somewhat similar lines might be started in this country. Mr. Kidner's report was followed by comments from Sir Robert Jones, Dr. E. Mapother, Dr. Porter Phillips, and Dr. Crichton Miller, which made it clear that while much was being done in this country for tuberculous cases, the psychical side of the work was as yet sadly undeveloped, owing rather to lack of funds and trained workers than to any failure to realise the value of handwork as a means of cure.

As a direct outcome of this meeting, representatives of interested bodies met at 122, Harley-street, London, in September, when Dr. Jane Walker explained the object of the meeting as an effort to ascertain the possibility of forming an association to stimulate and advance the work in this country, by promoting coöperation in already existing work, gathering suggestions and ideas from all sources and disseminating them for the common good, and by aiding in the training and supply of suitable workers. It should be borne in mind, said Dr. Walker, that occupational therapy was of three kinds: *Diversional* therapy, when the patient was not fit for more than simple games or amusements to divert the mind. Or, if further on the road to recovery, the *occupational* type of work could consist in making useful and artistic things, not only for the purpose of occupying the mind, but for the restoration of impaired or weakened function. Thirdly, and this would refer primarily to non-mental cases, the work could be *vocational*, in the attempt to place the patient in a better position to earn his living when restored to health. From the ensuing discussion it became clear that the position in regard to mental patients was held to be quite different from that of the tuberculous. In regard to orthopædic work, Mr. R. C. Elmslie regarded it as impossible to separate the occupational from the vocational. Dr. J. E. Chapman emphasised the distinction between the two. Lieut.-Colonel J. R. Lord's experience of mental cases showed the work had to be undertaken from an entirely curative and non-vocational point of view. Others who contributed to the discussion were Dr. N. D. Bardswell, Mrs. Kimmins (Heritage Craft Schools), Miss L. Nevile (Essex County Association), Miss Evelyn Fox (Central Association for Mental Welfare), and, on the subject of the training of workers, Mrs. Francis Lewis and Miss Munckton.

Three points emerged from this discussion: (1) No doubt exists as to the value, and, indeed, necessity, of handwork as a means of physical and mental cure in cases where recovery is slow and tedious. (2) Both in practice and result, occupational therapy differs widely in the two forms of illness, mental and physical. (3) The need for trained workers is urgent.

Finally, it was proposed by Dr. W. A. Brend (Ministry of Pensions) and carried unanimously that an association be formed, and a provisional committee to consider finance and organisation was appointed as follows: Dr. Jane Walker, Dr. Brend, Mr. William Wilson, D.Sc. (Inspector of Workshops, Ministry of Pensions), Mrs. Townsend (Cripples' Care Committee), Miss Nevile, Miss Fox, with Miss M. Gribble as acting secretary.

As one of the chief aims of this newly-formed Association will be to promote coöperation in existing work and to further new enterprise, it will be of the greatest assistance to the executive committee if heads of institutions or other interested workers would offer suggestions as to the way in which such an association would serve them best in their particular branch of work, and would furnish further details as to what they have been able to accomplish already.

I am, Sir, yours faithfully,

M. GRIBBLE,
Secretary, "Occupational Therapy,"
122, Harley-street, W. 1.

Oct. 7th, 1925.

WHAT CONSTITUTES A CURE IN PSYCHOTHERAPY?

To the Editor of THE LANCET.

SIR,—I read with interest the annotation on this subject in your issue of Oct. 3rd. Personal and subjective factors are of more account in the psychoneuroses and in functional disorders generally than in any other department of medicine. Classification, diagnosis, treatment, and standard of cure are therefore inevitably less cut-and-dried, and statistics are apt to be varied and unreliable. We remove a tumour, and set it up in a bottle of spirit for all the world to see; we remove an obsessive fear which its owner has hidden from all the world but ourselves—and where can we preserve it as evidence? The faulty adaptation to life which is the essence of a psychoneurotic state may be wholly internal, hence the unsupported statement of such a patient as to his illness, improvement, or cure, while not the final word on the matter must be given much more weight than in the case of a sufferer from gross organic disease. A cure can only consist in the patient being enabled to reach a stable adjustment to life, and can only be proved by the harmony and efficiency of his reactions to it and by his freedom from his former mental or physical symptoms.

It must also be remembered that certain persons, capable of leading highly useful and successful lives, suffer from what we can at present only call a constitutional nervous instability, which, from the practical point of view, is in many cases incapable of being influenced by psychotherapy or any other treatment. But just as we may "cure" a case of bronchitis without altering an underlying emphysema, or may, for an indefinite period, relieve dyspnœa and palpitation without affecting a damaged cardiac valve, so we may—and should—do much by psychotherapy to relieve neurotic symptoms even in cases where we may be unable to touch the basic causal factors. In other words, the existence of "chronics" is just as inevitable in psychological work as in ordinary medicine, their frequency no greater, their "cure" just as impossible, and their need for help just as urgent.

It is thus pertinent to ask, What constitutes a *failure* in psychotherapy, for it is certain that much scepticism and distrust are due to the fact that psychotherapy is asked for, and too often attempted, in cases where a total or partial "failure" is a foregone conclusion owing to the nature of the case or its attendant circumstances.

I have not happened to notice any published statistics of individual psychotherapeutic work, so, for what they are worth, I have investigated my own records. I am not in a position to say whether my results are good, bad, or merely absurd. I have taken 100 consecutive cases which have been referred to me for psychotherapeutic treatment, or at least for an opinion as to its advisability, omitting only those which are still under treatment, and a few obviously unsuitable cases, usually of manifest insanity, which have been brought to me without, or against, the advice of their physician. They cover a wide field, from enuresis and simple insomnia to complicated obsessional and anxiety states. I try to believe that I adapt my methods to individual cases. Some have worked out on typical Freudian lines, with others a more constructive kind of mental analysis has proved useful, some have been treated by explanation and discussion, one or two by hypnotic suggestion, due regard being had to the presence in any case of toxic or endocrine factors.

Of the 100 cases under review 16 were more or less promptly declined as unsuitable, without any attempt to institute treatment. The majority were cases of early melancholia or dementia præcox, three showed the mental sequelæ of lethargic encephalitis, two suffered from organic nervous disease. In this branch of medicine, above all others, rapid diagnosis is dangerous and often impossible, and in nine cases I began treatment in a more or less tentative way, but after a period varying from one to six weeks I decided, usually in spite of the patient's wish, to give it up, as it had become apparent that such treatment as I could give would do no real good. Some of these proved to be definitely psychotic, in some of them physical treatment appeared to be the first requirement, in others difficulties connected with their employment, or their domestic relationships were insuperable. It should be said that some at least of these 25 rejected cases could probably have been dealt with successfully in a suitable institution or nursing home had circumstances permitted. I have not included in this series some which I myself sent to such places.

Eight patients whom I would have continued to treat stopped attending, either owing to family opposition or because the demands which treatment made upon their time, pride, courage, honesty, or purse were more than they were prepared to face.

Of the remaining 67 cases treated to a conclusion, I classify 22 as "cured." By that I mean that all symptoms have disappeared, the patients are efficient and happy in their ordinary activities, and, if life treats them with reasonable kindness, I see no grounds for anticipating any relapse.

Twenty I describe as "much improved." (Ten of these state that they are perfectly well, but while encouraging them in that belief, I am not yet myself sufficiently confident as to their stability to include them in the "cured" class.) They have lost most, if not all, of their symptoms, and are getting on with their daily work very comfortably, able to deal fairly adequately with any difficulties which arise.

Seventeen are "improved." They are relieved of their more urgent symptoms, and are carrying on, though not without some difficulty at times. Psychological readjustment is apt to be a slowly progressive matter, and some of them will, I expect achieve it more fully by degrees. Others will probably require further assistance sooner or later.

The remaining eight are complete failures. That is to say, they are cases which, in my opinion, psychotherapy ought to have been able to help more or less, but which have shown no improvement. Apart from lack of skill on my part, the chief reasons for failure appear to be unusual depth and complexity in the psychological maladjustment, and the presence of persistently unfavourable external circumstances.

The obvious criticism of these figures from the statistical point of view is that each case is classified in an arbitrary manner, and largely on subjective grounds, by the unconfirmed testimony of two biased parties, the patient and myself. I grant this unfortunate and unavoidable fact at once, but until the emotional vagaries of the hysteric and the compulsions of the obsessionist can be made as definite and objective as microscopic specimens and death certificates, I do not see how statisticians can ever be given the precise and clean-cut figures and percentages regarding the results of psychotherapeutic work which they quite rightly demand in other departments.

I am, Sir, yours faithfully,

Glasgow, Oct. 12th, 1925. D. YELLOWLEES.

LUMINAL OR BORAX IN EPILEPSY.

To the Editor of THE LANCET.

SIR,—Those who deal with a large number of cases of epilepsy of all the described types, from minor epilepsy and pyknolepsy to affect epilepsy, know that it is not uncommon in adults to find remission from attacks for a few months with almost any of the advised remedies. My chief objections to luminal are: 1. It easily tends to become toxic, of which the symptoms are drowsiness, vertigo, disturbances of coördination and speech, rashes and œdema, and, occasionally, restlessness and excitability. 2. While in most cases which have never previously been given it, attacks are lessened and sometimes cease for a few months, in the vast majority of these cases it rapidly loses its effect and after a few months becomes ineffective.

In my own experience, sodium biborate (borax) is the most valuable therapeutic agent we have for epilepsy if it is properly applied. Since 1920 I have been using it as a routine treatment in every variety of epilepsy, in nearly 100 cases, and even where it does not absolutely cure it greatly reduces the number of attacks. The great objection is that children do not as a rule respond so well as adults. Its whole value lies in the method in which it is given. I start the patient (if an adult) on sodium biborate, gr. 10, thrice daily, with 10 or 15 gr. of sodium bromide. Sometimes I add 2 or 3 minims of liquor arsenicalis, but I am doubtful of the necessity of arsenic. The main combination is bromide and biborate. If the patient does well on this, I leave it. If the fits do not cease in a fortnight (the standard I adopt during treatment is total cessation of fits, not mere diminution in number, except in pyknolepsy), I first of all increase the sodium biborate to 15 gr. thrice daily. If the fits do not cease totally in another fortnight with this I next increase the bromide to 15 gr.—i.e., 15 gr. each of sodium biborate and sodium bromide. I leave it at that for a month or six weeks, and if there are still fits I give them 15 minims of belladonna once daily, either morning or evening, depending on whether the fits are diurnal or nocturnal, in addition to the 15 gr. each of bromide and biborate three times a day.

This combination almost invariably, in my experience, achieves a cessation of fits in adults. Once I get to the optimum drug combination I leave the patient on that for about two months if belladonna has been used, then I diminish the belladonna first, so that after a further month the patient is not taking belladonna. The biborate and bromide I leave undisturbed for at least a year, then if there are still no fits I gradually diminish the bromide, taking some months till the bromide has disappeared altogether. The patient then remains on what is his optimum dose of biborate (10 or 15 gr.), and is kept for another year, even without fits, on sodium biborate and water.

The following cases shown at a recent clinical lecture will serve as illustration.

Mrs. A. B., aged 45. I first saw her on Nov. 10th, 1921. She had had her first fit three years before that and had been under continuous medical treatment. Her fits were now getting more frequent and when first seen she was getting two to three every week. She had no aura. She had incontinence of urine sometimes, bit her tongue, injured herself sometimes, and was always mentally confused afterwards. She was put on sodium biborate gr. 10, ammonium bromide gr. 15, liquor arsenici hydrochlorici minims 3. In the course of the first 12 months under treatment she had only three slight attacks, and her last fit (a mild one) was on Dec. 8th, 1922. The bromide was finally taken out of her mixture on March 1st, 1923, when she was put on a mixture of sodium biborate, gr. 10 and water, three times a day. This was continued till April, 1924, when all medicine was stopped. Since then she has had an attack of pleurisy and one of influenza, but she has had no more fits.

Miss C. D., aged 27, "dull mentally" since birth, and can neither read nor write. She had fits of major epilepsy for several years before coming under my care in January, 1922. They were increasing and she was then having sometimes three in a week. She was put on 10 gr. each of sodium biborate and ammonium bromide thrice daily. Her last attack of major epilepsy was in April, 1922, but she has had what her mother calls "spasms," probably myoclonus epilepsy. She had one of these "spasms" on an average of one every two months, but has not had even a "spasm" since September, 1924. She is still on 10 gr. each of bromide and biborate.

Mr. E. F., aged 26. He has had fits since the age of 11. He has no aura; incontinence of urine sometimes; bites his tongue, injures himself, and is "stupid" for about ten minutes afterwards. His fits averaged one a month, and he had been under treatment at various hospitals for many years. His last fit was on April 7th, 1924. He came under my notice on April 16th, 1924, and I put him on sodium biborate gr. 10, sodium bromide gr. 15, thrice daily. He has not had a fit since he has been under treatment. He is now on 10 gr. of biborate and 5 gr. of bromide. In another month he will be on biborate alone. His general health has improved and he feels well. His heart exhibits premature contractions at irregular intervals, 1 in 4 or 5, to 1 in about 50 beats, but he has no dyspnœa or palpitation.

On the whole I find that patients bear sodium biborate well, and I have yet to find one suffering to any extent from indigestion due to it. The only toxic effect I have noted is that the heart frequently exhibits premature contractions, which can be ignored, as the patients do not suffer either from dyspnœa or palpitation.

I am, Sir, yours faithfully,

PHILIP FIGDOR, M.B.,
Assistant Physician, London Temperance Hospital, &c.

Oct. 7th, 1925.

LUMINAL IN EPILEPSY.

To the Editor of THE LANCET.

SIR,—I have before me the case-records of 89 epileptics treated during the last two and a half years at the Birmingham and Midland Hospital for Nervous Diseases. Careful records of progress and treatment are kept in all cases of epilepsy at this hospital, so that the case-sheets constitute a valuable guide to the merits of different forms of treatment. Of the 89 cases, 40 per cent. attended at fortnightly intervals for over 12 months, another 45 per cent. for over six months, and the rest for short periods only.

From a study of these cases four facts seem to emerge: (1) That luminal is more effective than bromide in controlling the seizures in idiopathic epilepsy; (2) that the effect of luminal is considerably enhanced by the addition of a small dose of bromide; (3) that the mentality of the patient improves under luminal, as compared with bromide; and (4) that although the period of improvement under luminal is longer than under bromide, tolerance seems eventually to be established and fits recur.

As to dosage, I do not believe that more than 3 gr. of luminal daily should be given in epilepsy. In only five cases of this series was this dose exceeded, 1½ gr. having been given three times a day, and in every case signs of intoxication appeared—that is, thick speech, ataxia, hilarity, and a subjective sensation of "silly-headedness." In no case were skin rashes noted. I do not believe that luminal can ever replace bromide entirely, but I think its great utility is to enable us to so reduce the dose of bromide that the characteristic bromide depression does not occur. Also, since it is given in tabloid form it is so much more convenient to take. I have omitted special features, such as family history, the presence of disease in other systems, reflex sources of irritation, and, what is still more important, the time which has elapsed between the onset of fits and the institution of treatment, but all these have been taken into account in deciding the merit of luminal as compared with bromide.

Dr. O. G. Misquith quotes two cases from his practice in which luminal completely checked the fits and restored the patients to a "normal existence." I, too, have had such cases, in which it appeared to act like magic, cases in which bromides had seemed actually to aggravate the trouble. I remember one such case in a tram conductor, who had lost his employment on account of fits, and who, when he consulted me, was having 5 to 10 seizures a week. Luminal in his case completely checked the fits, and for months he would bounce into my consulting-room at the hospital, and literally sing his praises from a new-found vitality and joy in life. Alas, this lasted exactly 12 months, and then the fits began to recur, and try as I might by readjustment of dosage, I could not again control him with luminal. I could quote many similar cases.

Cases in which fits begin between the ages of 14 and 20 seem by our statistics to be the easiest to control, and I am a firm believer in bringing all recent cases of epilepsy under a preliminary in-patient observation and treatment before beginning out-patient attendance. Some remarkable facts in this connexion are brought to light by a study of this series of cases.

I am, Sir, yours faithfully,

A. WILLIAMS-WALKER, M.D., M.R.C.P.,
Physician to Out-patients, Birmingham and Midland Hospital for Nervous Diseases (associated with Queen's Hospital, Birmingham).

Oct. 10th, 1925.

STICKING-PLASTER DERMATITIS.

To the Editor of THE LANCET.

SIR,—The annotation on this subject in your issue of Oct. 10th is important. It is to be hoped that Dr. H. W. Siemens has isolated the injurious ingredient. If it can be omitted from the plaster he will have conferred a great boon on countless patients. Recently I was conducting a number of experiments on the skin of my arms and of some colleagues; the ordinary brown hospital plaster was used to retain the applications in position. Invariably, a day or two later, the parts touched by the plaster broke out in discrete follicular pustules. These confused and vitiated any conclusions one might draw from the effects of the materials we were testing. The use of plaster necessarily had to be discontinued.[1] There did not appear to be any sensitising effect from the plaster. All the experimenters seemed equally liable. The eruptions were strictly localised, and the strength and severity of the inflammation produced apparently varied with the length of application.

I am, Sir, yours faithfully,

Wigan, Oct. 12th, 1925. R. PROSSER WHITE.

[1] Brit. Jour. Dermatology and Syph., April, 1925, p. 163.

Obituary.

ARTHUR GORDON JENNER, M.R.C.S. ENG., D.P.H. LIVERP.

Dr. A. G. Jenner, medical officer of health for the Borough of Stockport, who died on Oct. 5th at the age of 40, studied medicine at the University of Liverpool, qualifying in 1907, and in 1911 he obtained the Liverpool Diploma of Public Health. He held successively the posts of house surgeon and senior house physician at the Royal Southern Hospital, Liverpool, and was then appointed resident medical officer at the West Derby Union Infirmary, Liverpool. For two years he was resident medical officer at the Liverpool Corporation Park Hill Fever Hospital, and in 1912 was appointed assistant medical officer of Burton-on-Trent. Just before the outbreak of the war he went to Stockport as tuberculosis officer, and was appointed deputy medical officer in the early part of 1915. For two years he had charge of the public health in Stockport, and in 1917 joined the Army, where, until 1919, he served with the rank of captain on the administrative staff of the Salonika Army in charge of the 98th and 131st Sanitary Sections. On his return to Stockport he was reappointed deputy M.O.H. in October, 1920. He succeeded the late Dr. H. E. Corbin as medical officer of health for Stockport in 1922. Dr. Jenner was a member of the Board of Directors of the Stockport County Football Club, and was himself an enthusiastic footballer, having been a Rugby player. He was a most efficient and painstaking medical officer, and he was particularly interested in child welfare. A man of pleasing and attractive personality, his early death is deeply regretted by the whole community of Stockport. He leaves a widow and two children.

PERCY ROBERT COOPER, M.D., B.Sc. (HONS.) LOND., F.R.C.S. ENG.

Dr. P. R. Cooper, honorary consulting surgeon to the Altrincham General Hospital, died on Oct. 10th as the result of septic poisoning contracted in the course of his professional duties. He received his medical training at the University of Manchester and at St. Bartholomew's Hospital, London, graduating M.B., Ch.B. Vict. in 1893 and obtaining the M.R.C.S. Eng. and L.R.C.P. Lond. in the same year. In 1890 he gained the B.Sc. of London University with honours, and in 1895 he became a Fellow of the Royal College of Surgeons of England. The following year he obtained the M.B. Lond. with first-class honours, and in 1901 became M.D. Lond. With a strong leaning towards natural history, he was for a time assistant demonstrator in zoology and pathology at Owens College, Manchester, and after some experience as a house surgeon in the Manchester Royal Infirmary he took up practice in Altrincham, where in due course he became one of the best-known and busiest practitioners in North Cheshire. Two years ago he was appointed honorary surgeon to the Altrincham General Hospital. Dr. Cooper was an enthusiastic member of the medical and pathological societies of Manchester, and at one time acted as President of the Manchester Clinical Society. He was a great reader of medical books and occasionally contributed a well-considered note on some clinical problem to a medical journal. The joint library of the Manchester Medical Society and the University Medical School owed much to his interest and coöperation. Altogether he will be much missed.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations held recently the following candidates were successful:—

DIPLOMA IN PUBLIC HEALTH.

Old Regulations: John R. Hayman; James A. G. Keddie; William B. Stott, Christ's. *New Regulations:* Andrew N. Fergus; Mary K. Henegan; Reginald A. Mansell, Emm.; Charles F. Pedley, Jesus; Charles J. Stocker, Trin. (distinguished in Part I.); Francis C. Tibbs; and Man K. Yue, Christ's (distinguished in Part II.).

DIPLOMA IN HYGIENE.

Abdel R. Hassan and Labib Shehata.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—The third award of the Streatfeild Research Scholarship has been made by the executive committee of the College to Mr. Norman Leslie Capener, F.R.C.S. This scholarship was founded in 1916 through the generosity of Mrs. Eliza Streatfeild, who gave the sum of £10,000 to the Royal College of Physicians and the Royal College of Surgeons, the income thereof to be expended upon the promotion of research in medicine and surgery. The subject of Mr. Capener's research will be the Comparative Anatomy and Function of the Prostate Gland. The research will be carried out at St. Bartholomew's Hospital and the Zoological Society.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council on Oct. 8th, Sir John Bland-Sutton, President, in the chair, the annual report of the Council to be submitted to the Fellows and Members at the annual meeting on Thursday, Nov. 19th, was submitted, approved, and adopted.—The President reported that a Sir Gilbert Blane Medal had been awarded to the following medical officer of the Royal Navy: Surg. Lieut.-Commdr. Lionel Frederick Strugnell, promotion examination, 1925.—The President also reported that the Bradshaw Lecture on Gastro-jejunostomy would be delivered by Mr. James Sherren on Wednesday, Nov. 11th, at 5 P.M.; and that the Thomas Vicary lecture on the Mediæval Conception of the Anatomy and Physiology of the Central Nervous System would be delivered by Prof. William Wright on Wednesday, Nov. 18th, at 5 P.M., at the College.—Diplomas of Member were conferred upon the following candidates who have complied with the by-laws of the College:—

K. Bandaly, Cairo and Univ. Coll.; Leighton M. Clark, King's Coll. Hosp.; Andrew N. Coomaraswamy, Madras and London Hosp.; Gerald N. Golden, London Hosp.; Tom A. Griffiths, Cardiff and Liverpool University; Allan B. Hewlett, King's Coll. Hosp.; Thomas Kemp Homer, Birmingham University; and Elizabeth M. Weideman, St. Mary's Hosp.

VICTORIA UNIVERSITY OF MANCHESTER.—At the examination for the Diploma in Public Health, held recently, the following candidates were successful:—

Part II.—R. B. Boston, P. D. Connolly, E. R. Gilmore, and A. C. Newman.

Part I.—Georgie I. Brodie and Margaret Sproul.

THE Council of the British Empire Cancer Campaign has approved a grant of £1000 a year for six years to Dr. Thomas Lumsden, at the Lister Institute of Preventive Medicine, to enable him to continue the experimental work on cancer antisera reported in THE LANCET of Feb. 21st and Sept. 12th, 1925. Further grants have also been made to Dr. J. C. Mottram, Dr. Louis Cassidy, and Prof. R. T. Leiper.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A lecture on the Diagnosis of Pulmonary Tuberculosis will be delivered by Dr. Marcus Paterson in the Lecture Hall of the Medical Society of London, 11, Chandos-street, on Monday, Oct. 19th, at 5.30 P.M., and all members of the medical profession will be welcome. Several special courses have been arranged for the month of November. The Chelsea Hospital will hold a three weeks' course from Nov. 2nd, consisting of demonstrations, operations, and lectures by members of the staff. Throughout the month the London Lock Hospital has arranged a comprehensive course in venereal diseases. The Royal Waterloo Hospital will give a course in Medicine, Surgery, and Gynæcology from Nov. 23rd to Dec. 12th, embracing the study of diseases of children and women from all aspects. From Nov. 3rd to 28th Dr. Porter Phillips and Dr. Thomas Beaton will give twice weekly lecture-demonstrations on Psychological Medicine. An evening course for general practitioners has been arranged at the London Temperance Hospital from Nov. 1st to 13th. There will be a course in Diseases of the Chest, Heart, and Lungs at the Victoria Park Hospital from Nov. 9th to 21st. Application for copies of each of the syllabus and for the general programme should be made to the Secretary, at 1, Wimpole-street, London, W. 1.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—A meeting of this association will be held at 11, Chandos-street, Cavendish-square, W., on Friday, Nov. 6th, at 4.45 P.M., when Dr. A. I. Simey will read a paper on the Prophylaxis of Common Colds.

A CONFERENCE on Social Insurance in its national and international aspects is to be held under the auspices of the League of Nations Union from Nov. 23rd–26th at the London School of Economics. Sessions of the Conference will deal with the following aspects of the problem: The Government pensions scheme; the unification of social insurance; health insurance; workmen's compensation and accident prevention; unemployment insurance; family insurance; and the international aspects of social insurance. Full particulars of the Conference may be obtained from the Secretary, League of Nations Union, 15, Grosvenor-crescent, S.W. 1.

CLERICAL, MEDICAL, AND GENERAL LIFE ASSURANCE SOCIETY.—The report presented at the 101st annual general meeting of the Clerical, Medical, and General Life Assurance Society, held at 15, St. James's-square, London, on Oct. 9th, showed that during the year 1889 new assurances were made for a total sum of £1,616,869, while re-assurances were effected to the extent of £227,500, making the net new life business £1,389,369, as compared with £1,324,691 in the previous year. The total premium income was £672,332, or an increase of £62,840. The claims by death amounted to £352,610, an increase of £3873 over the previous year, which is accounted for by the expansion of the business of the Society. The expenses of management, after allowing for the cost of annuity business, represented £14 7*s.* 5*d.* per cent. of the premium income. As a result of the year's transactions the Life Assurance Fund increased from £7,961,035 to £8,464,681. This growth of £503,646 exceeds that of any previous year.

DENTAL BOARD OF THE UNITED KINGDOM.—A course of four lectures (illustrated by lantern slides) on General Anæsthesia will be delivered during the forthcoming winter season. The series will consist of the following: (1) Respiration in Anæsthesia, and (2) the Absorption and Elimination of Volatile Substances in the Lungs, by Prof. Yandell Henderson, Yale University; (3) the Circulatory Changes in Anæsthesia, and the Use of Oxygen, by Dr. Leonard Hill; (4) the Metabolic Changes in Chloroform Poisoning, by Prof. Noel Paton. The lectures will be given in:—London: In the Robert Barnes Hall, the Royal Society of Medicine, 1, Wimpole-street, W., at 8.30 P.M., on Oct. 22nd, 23rd, and 30th, and Jan. 11th. Manchester: In the Medical School, the University Buildings, Oxford-road, at 5.30 P.M. on Oct. 26th and 27th, Nov. 3rd, and Jan. 13th. Edinburgh: In the Surgery Theatre, the University, at 5 P.M., on Oct. 29th and 30th, Nov. 5th, and Jan. 15th. The course is intended primarily for dentists and medical practitioners. Dental students are invited to attend. Tickets of admission are not required.

LIVERPOOL MEDICAL INSTITUTION.—On Thursday, Oct. 8th, the members of this society met to offer their congratulations to no fewer than three of their number on the completion of 50 years' membership. These were Dr. A. Craigmile, of Wallasey; Dr. A. C. E. Harris, of Birkenhead; and Mr. F. T. Paul. Allusion was made to the large part played by Dr. Craigmile in the foundation of the Victoria Central Hospital, Wallasey, and to the leading position taken now for many years by Dr. Harris in the profession in Birkenhead. Mr. Rushton Parker and Mr. T. H. Bickerton recalled their experiences of Mr. Paul's earlier days, when he went to Liverpool as resident medical officer and superintendent at the Royal Infirmary, duties now carried out by 11 different individuals. The surgeons of the city had combined to have a number of Paul's "Selected Papers" published as a tribute of their respect and admiration for the man and his work, and at the close of the meeting a formal presentation of this was made.

NEW STOKE-ON-TRENT POOR-LAW HOSPITAL.—The Stoke-on-Trent guardians have approved in principle a scheme for the erection of a new Poor-law hospital which, it is stated, will cost £500,000. The scheme provides for the erection of a hospital at Stoke with 400 beds, capable of expansion to 800, together with all the other adjuncts of a great modern hospital. The decision was arrived at after a favourable report by Dr. F. W. Ellis, chief medical officer of the Birmingham Union, based upon an inspection of the existing institutions at Tunstall and Stoke. Dr. Ellis strongly recommended the centralisation of hospital services for Poor-law purposes by transferring the patients to the Stoke institution and the building of the new hospital there. He suggested that the new hospital should be utilised for the treatment of acute cases, and that the two existing ones should be retained for chronic sick and infirm cases.

THE Wellcome Historical Medical Museum, 54A, Wigmore-street, W., will be closed for cleaning and structural alterations from Oct. 19th until Nov. 30th.

TUBERCULOSIS SOCIETY.—A meeting of this society will be held to-day (Friday) at 8 P.M., at 1, Upper Montague-street, Russell-square, London, W.C., when Dr. F. G. Chandler will read a paper on Pulmonary Tuberculosis in Children.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY. The first meeting of the session will be held on Friday, Oct. 23rd, at the Royal Devon and Exeter Hospital, Exeter, the President, Mr. J. M. Ackland, in the chair. An address will be given by Sir StClair Thomson on the Surgical Anatomy of the Nose and Accessory Sinuses.

THE death has occurred at Hampstead on Oct. 10th of Dr. C. F. Sonntag, Prosector to the Zoological Society and demonstrator in anatomy at University College. Dr. Sonntag was at one time medical officer to the Great Portland-street Red Cross Clinic for Disabled Officers, and recently published a standard work on the Morphology and Evolution of the Apes and Man.

UNIVERSITY OF EDINBURGH: CAMERON PRIZE LECTURES.—Prof. Harvey Cushing, who was awarded the Cameron Prize of 1924, will deliver three lectures in the Anatomy Class-room, University New Buildings, on the undermentioned dates at 4 P.M.:—Monday, Oct. 19th: The Circulation of the Cerebro-spinal Fluid; chairman, Sir E. Sharpey Schafer. Tuesday, Oct. 20th: The Pituitary Gland; chairman, Sir J. Alfred Ewing. Thursday, Oct. 22nd: Brain Tumours; chairman, Sir Harold J. Stiles. Students and graduates in medicine are invited to attend.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL.—Following the opening lecture of the winter session by Dr. William Hill on Oct. 6th, the annual dinner of the medical staff was held at the Trocadero Restaurant the next evening, Mr. Harold Kisch in the chair. A total of 52 were present, and amongst the guests were: The lecturer, Dr. W. Hill; the President of the Royal Society of Medicine, Sir StClair Thomson; the President of the Fellowship of Medicine, Sir William Arbuthnot Lane; Sir Thomas Horder; the President of the Laryngological Section, Royal Society of Medicine, Dr. W. H. Kelson; the Honorary Secretary of the Fellowship of Medicine, Mr. Herbert Paterson; Mr. Herbert Tilley; Mr. G. J. Badgerow; Mr. T. B. Layton; Dr. Watson-Williams; Dr. J. H. Chaldecott; and the Chairman of the Committee of Management of the Hospital, Mr. Carmichael Thomas, with his colleagues, Mr. Mackillop Brown and Mr. Glenton Lewis.

LIVERPOOL: VISIT OF THE MINISTER OF HEALTH.—During a two days' visit to this city Mr. Neville Chamberlain busied himself chiefly with the inspection of the new housing and re-housing problems of Liverpool. The site for the proposed ten-story tenement was visited, and at the dinner in the town hall on Oct. 8th he expressed himself as profoundly impressed with the boldness and courage with which the subject had been faced, and more particularly for the imagination shown in planning communications between the newer areas and the centre of the town. He also advanced the consideration as to whether the time had not come when great communities should consider a change of ownership of slum property, substituting for a landlord, unwilling or unable to fulfil his responsibility, one which has ample resources and a sense of public duty. On the second day Mr. Chamberlain visited the various institutions under the guardians and also the municipal hospital at Fazakerley for infectious diseases, including phthisis and surgical tuberculosis. At the latter institution he spoke of his sympathy with the campaign for a plentiful, clean, tubercle-free milk-supply, and also promised to see that, so far as the financial condition of the country would allow, a due proportion of the Government's resources was secured for the extension of the campaign against tuberculosis, above all for the treatment of the disease in childhood.

Hospitals Contributory Scheme.—At a recent meeting of the Liverpool Hospital Staffs' Association the opportunity was taken of drafting certain resolutions bearing upon the proposed Lord Mayor's contributory scheme for the support of the voluntary hospitals, which is modelled largely upon the Sheffield "penny-in-the-pound" idea. The following points were emphasised: (1) That there should be no differentiation in treatment between contributors and non-contributors; (2) that it should be recognised that contributors should attend the hospitals only with the knowledge of their private medical attendant, except in cases of urgency; (3) that in any contract entered into by hospital authorities for the provision of medical services provision should be made for the payment of a certain proportion into a medical staff fund. It was noteworthy that these points, after full discussion, were agreed to unanimously by the meeting, at which all the hospitals were fully represented.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Oct. 20th.

GENERAL MEETING OF FELLOWS: at 5.30 P.M.
Ballot for election to the Fellowship.

PATHOLOGY: at 8.30 P.M.
Papers:
W. Cramer: Systemic Factors in Carcinogenesis.
C. C. Okell and H. J. Parish: Virulence Testing of the Diphtheria Bacillus.

Wednesday, Oct. 21st.

HISTORY OF MEDICINE: at 5 P.M.
Paper:
Dr. J. D. Rolleston (President): Voltaire and Medicine. Part I.

SURGERY: at 8.30 P.M.
Presidential Address:
Sir Lenthal Cheatle: The Present State of the Teaching and Practice of Surgery.

Friday, Oct. 23rd.

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (Cases at 4.30 P.M.)
Cases:
Dr. C. Worster-Drought: Case of Hirschsprung's Disease with Double Optic Atrophy.
Dr. C. Worster-Drought (shown by Dr. E. W. Fulton): Case of Incoördination, for Diagnosis.
Mr. W. E. Tanner: Congenital Malformation of Tongue and Pharynx.
Dr. D. Paterson: Old Case of Cœliac Disease.
Dr. N. Hobhouse: Lesion of Mid-Brain and Pons.

EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.
Paper:
Dr. T. Stacey Wilson: On the Management of Scarlatinal Epidemics in Boarding Schools (illustrated by photographs of Desquamation, Scarlatinal and otherwise).

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester-square, W.C.
WEDNESDAY, Oct. 21st.—4.30 P.M. (at St. John's Hospital, Leicester-square), Pathological Specimens and Clinical Cases. 5 P.M., Dr. Knowsley Sibley: Treatment of Diseases of the Skin by Ultra-violet Rays.
The Monthly Dinner will be held at the Cavour Restaurant, Leicester-square, at 6.30 P.M. Price 7s. 6d. per head.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

THE FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 19th, to SATURDAY, Oct. 24th.—Fellowship of Medicine Lecture, Medical Society, 11, Chandos-street, Mon., 5.30, Dr. Marcus Paterson: The Diagnosis of Pulmonary Tuberculosis. — COMBINED CHILDREN'S COURSE, Paddington Green Children's Hospital, Victoria Hospital, and Children's Clinic. Morning and afternoon sessions.—CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road. Special Course in Laryngology, Rhinology, and Otology. Clinical course and Operative Surgery course, of which one or both may be taken (second week).—LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Endsleigh-gardens. Tuesday and Thursday, Clinical demonstration by Dr. G. C. Low and Dr. Manson-Bahr at 2.—ST. PETER'S HOSPITAL, Henrietta-street. Special course in Urology. Clinical work every afternoon and lecture.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
THURSDAY, Oct. 22nd.—3 P.M., Demonstration: The X Ray Examination of Pulmonary Tuberculosis. 4.30 P.M., Lecture: The Treatment of Pulmonary Tuberculosis with Special Reference to Artificial Pneumothorax.
Daily: In-patient and Out-patient Clinics in General and Special Departments, Operations, &c.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Oct. 22nd.—4 P.M., Dr. Frew: Acidosis.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
TUESDAY, Oct. 20th.—5 P.M., Dr. H. W. Barber: Bacteriology and Mycology.
THURSDAY.—5 P.M., Dr. J. M. H. MacLeod: Morphology and Histopathology of Elementary Lesions.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Oct. 20th.—4.15 P.M., Dr. C. H. Melland: Some Tropical Diseases.
FRIDAY.—4.15 P.M., Prof. W. L. Bragg: X Rays.

ANCOATS HOSPITAL POST-GRADUATE LECTURES.
THURSDAY, Oct. 22nd.—4.15 P.M., Mr. E. E. Hughes: The Significance of Urinary Symptoms.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: OCTOBER-NOVEMBER, 1925.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Oct. 19th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., An Introduction to the Study of Aphasia: Dr. Kinnier Wilson.

TUESDAY, Oct. 20th.—2 P.M., Out-patient Clinic: Dr. Walshe. 3.30 P.M., Compression Paraplegia from a Surgical Standpoint: Mr. Armour.

THURSDAY, Oct. 22nd.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Ocular Palsies: Dr. Gordon Holmes.

FRIDAY, Oct. 23rd.—2 P.M., Out-patient Clinic: Dr. Adie. 3.30 P.M., Demonstration of Swedish Remedial Exercises (in Exercise Room): Mr. Elmquist.

The fee for the Course, including Pathology Lectures, is £5 5s. For those who hold Perpetual Tickets the fee is £3 3s.

COURSE OF LECTURES AND DEMONSTRATIONS ON THE PATHOLOGY OF THE NERVOUS SYSTEM.

THURSDAY, Oct. 22nd.—12 noon, Ischæmia: Dr. J. G. Greenfield.

COURSE OF LECTURES AND DEMONSTRATIONS ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.

MONDAY, Oct. 19th.—12 noon, The Spinal Cord (continued): Dr. J. L. Birley.

Dr. H. J. MacBride will give a COURSE of EIGHT CLINICAL DEMONSTRATIONS, chiefly on METHODS OF EXAMINATION OF THE NERVOUS SYSTEM, in the Wards at 10 A.M. on Tuesdays and Fridays, if sufficient entries are received. The fee for this Course will be £2 2s. (commencing Tuesday, Oct. 20th).

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

J. G. GREENFIELD, Dean of Medical School.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Oct. 21st.—4 P.M., Dr. M. B. Ray: The Prevention and Arrest of Rheumatic Disease.

PEOPLE'S LEAGUE OF HEALTH, Fyvie Hall, Regent-street Polytechnic.

FRIDAY, Oct. 23rd.—6 P.M., Mr. E. B. Turner: Recreation and Physical Exercise.

Appointments.

GLENNIE, J. A. R., M.B., C.M. Aberd., has been appointed one of the Medical Referees under the Workmen's Compensation Act for the Districts of the Camelford, Holsworthy, and Launceston County Courts.

MACADAM, W., M.D. Glasg., M.R.C.P. Lond., Honorary Assistant Physician to the Leeds General Infirmary.

OLDHAM, J. B., M.B., Ch.B. Liverp., F.R.C.S. Eng., Honorary Assistant Surgeon to the David Lewis Northern Hospital, Liverpool.

TOOGOOD, F. S., M.D. Lond., one of the Medical Referees under the Workmen's Compensation Act for the Districts of the Bodmin and Liskeard County Courts.

St. Mary's Hospitals, Manchester: BRENTNALL, C. P., M.B., Ch.B. Liverp., Honorary Assistant Surgeon; POPE, S., M.B., Ch.B. Manch., and CROWTHER, J. A., M.B., Ch.B. Manch., House Surgeons at the Whitworth-street West Hospital: ADAM, R. S., M.B., Ch.B. Manch., House Surgeon at the High-street Hospital; CRAIG, JENNIE D., M.B., Ch.B., Assistant Medical Officer, Out-patient Department; KNIGHT, BARBARA M., M.B., Ch.B., Clinical Assistant.

Certifying Surgeons under the Factory and Workshop Acts: HOEY, J. T. S., M.B., B.Ch. Oxf. (Petersfield); GRAHAM, J. (East Grinstead); MORRIS-JONES, J. H., L.R.C.P. & S. Edin., L.R.F.P.S. Glasg. (Colwyn Bay); and WEBB, H., L.R.C.P. Lond., M.R.C.S. (Bexhill).

Vacancies.

For further information refer to the advertisement columns.

Barry Urban District Council.—H.S. At rate of £200.

Birmingham, Highbury Group of Hospitals.—Jun. Surg. O. £350.

Birmingham, St. Chad's Hospital.—Res. M.O. £100.

Bolton County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £600.

Brighton, New Sussex Hospital for Women and Children.—Hon. Asst. Anæst.

Brighton, Royal Sussex County Hospital.—Hon. M.O. for Dis. of Ear, &c.

City of London Hospital for Diseases of the Heart, Victoria Park, E.—H.P. at rate of £100.

Colwyn Bay and Colwyn Urban District Council.—M.O.H., &c. £800.

Eastbourne, Princess Alice Memorial Hospital.—Res. H.S. At rate of £175.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.P. At rate of £125.

Essex Administrative County.—Asst. Tuberc. O. £600.

Greenwich, Dreadnought Hospital.—S. in charge of Out-patients.

Hospital for Sick Children, Great Ormond-street, W.C.—Med. Reg. and Pathologist. £300.

Hospital for Women, Soho-square, S.W.—Pathologist and Reg. £100.

Liverpool Hospital for Consumption and Diseases of Chest, Mount Pleasant.—Hon. Asst. P.

Metropolitan Hospital, Kingsland-road, E.—Sen. and Jun. H.P. Sen. and Jun. H.S. Also Two Cas. O.'s. Each at rate of £100.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Res. M.O. £200.

Newark Hospital and Dispensary.—Res. H.S.

Poplar Hospital for Accidents, East India Dock-road, E.—Second Res. Surg. O. £175.

Prestwich County Mental Hospital, near Manchester.—Med. Supt. £800.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. S.

Rochester, St. Bartholomew's Hospital.—Third Res. M.O. At rate of £200.

Royal Chest Hospital, City-road, E.C.—Phys. to Out-patients. £50.

Royal London Ophthalmic Hospital, City-road, E.C.—Sen. H.S. £150.

St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Pathologist. £100.

St. Mary's Hospital for Women and Children, Plaistow, E.—Res. M.O. and Asst. Res. M.O. At rate of £175 and £130 respectively.

Stoke-on-Trent, North Staffs. Royal Infirmary.—H.S. £150. Also H.P. £125.

Seychelles Government.—Asst. M.O. and Res. S. Rs.6500.

Births, Marriages, and Deaths.

BIRTHS.

HEYWOOD-WADDINGTON.—On Oct. 5th, at St. Catherine's-road, Littlehampton, to Dr. and Mrs. Heywood-Waddington—a daughter.

MURPHY.—On Oct. 7th, the wife of James Murphy, M.B.E., F.R.C.S.E., Middlewich, of a daughter.

RICHARDSON.—On Oct. 6th, at Edinburgh, the wife of Major D. T. Richardson, R.A.M.C., of a daughter.

URQUHART.—On Oct. 12th, at the Little House, Farnham, Surrey, the wife of J. L. T. Urquhart, L.D.S. R.C.S., of a son.

MARRIAGES.

CHAVASSE—JACKSON.—On Oct. 14th, at St. John's, Putney, Charles Cecil Howard, M.A., B.M. Oxf., son of Mr. and Mrs R. E. Chavasse, of Barnards Green House, Great Malvern, to Mabel, daughter of the late Mr. Jackson and Mrs. Jackson, of 67, Clarendon-road, Putney.

MCKENDRICK—EVANS.—On Oct. 7th, at St. Martin-in-the-Fields, William McKendrick, M.B., Ch.B., to Dorothy, third daughter of Howell T. Evans, M.R.C.S., and Mrs. Evans, The Laurels, Blackwood, Mon.

SNODGRASS—OWEN.—On Oct. 3rd, at St. Saviour's Church, Walton-street, S.W., Captain William McElrea Snodgrass, M.C., R.A.M.C., to Kathleen, elder daughter of A. D. Owen, of Pont-street, S.W.

WALKER—CLOUSTON.—On Oct. 6th, at Frodingham Parish Church, Arnold Learoyd Walker, M.A., M.B., B.Ch., to Gwenville, youngest daughter of the late Mr. and Mrs. J. Clouston, of Middlesbrough.

WATSON—LEA.—On Sept. 15th, at Christ Church, Mussoorie, Major W. L. Watson, O.B.E., I.M.S., Meerut, to Dorothy Ellen, eldest daughter of Mrs. H. Lea, Burton-on-Trent, and the late Henry Lea.

WILSON—ELLICOCK.—On Oct. 7th, at Holy Trinity Church, Aldershot, Captain J. A. Lawther Wilson, R.A.M.C., to Gladys Vera, daughter of Captain Ellicock, Aldershot.

DEATHS.

COOPER.—On Oct. 10th, Percy Robert Cooper, M.D., F.R.C.S., of Glenthorne, Bowdon, Cheshire.

LAWRIE.—On Oct. 8th, from pneumonia, Alexander Lawrie, M.B., Ch.B., of Hither Green-lane, S.E.

PREST.—At Glenafton, New Cumnock, Ayrshire, on Oct. 8th, Jessie Annie (née Creighton), the loved wife of Edward Ernest Prest, M.D.

SERPELL.—On Oct. 11th, at nursing home in Plymouth after operation, Hugh Hamilton Serpell, M.R.C.S., L.R.C.P., late Lieut.-Colonel R.A.M.C., of Polyphant House, Lewannick, Cornwall, aged 48.

SONNTAG.—On Oct. 10th, at his residence, Belsize Park-gardens, N.W., Charles Frederick Sonntag, M.D., Ch.B. Edin., Prosector to the Zoological Society of London.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

His Majesty the King's Royal licence and authority has been granted to Dr. Percy Glyn Savours Williams, Principal Medical Officer of Health, Cairo City, to wear the decoration of the Order of Ismail, Insignia of the Third Class, which has been conferred on him by the King of Egypt.

Notes, Comments, and Abstracts.

HOSPITALS, GENERAL AND SPECIAL.*

BY N. BISHOP HARMAN, M.B. CAMB., F.R.C.S. ENG.,
SENIOR OPHTHALMIC SURGEON TO THE WEST LONDON HOSPITAL, ETC.

The Question at Issue.

THE part that should be played by general and special hospitals in a comprehensive hospital organisation is a matter of growing interest. It is of interest whether the problem be viewed from the national or local standpoint. Hospital organisers must necessarily view the problem as it applies to the area of their work, but these same workers should on occasion take the larger view of national requirements, and envisage the problem as it appears to those whose duty it is to strive to adjust the demands of area and area. Few areas can or do stand alone. Modern facilities for intercommunication have laid flat the boundaries of formerly self-contained areas, so that there can be found but few which can now claim that they are independent of the greater whole. It is well at the outset to define our terms, and to do so in relation to present-day practice. Whatever the connotation of the terms may have been in the past, we now use the words "general" and "special" in a strictly regular manner. We mean by a general hospital one that admits to its services all kinds, or almost all kinds, of disease in any age or sex; and we mean by a special hospital one that restricts its services to one type of disease or one type of patient as defined by age or sex. The question at issue is the relative advantage or disadvantage of such general or special hospitals.

Origin of Hospital Types.

It is of interest to look back upon the origin of these types of hospitals. The earliest hospitals were almost entirely general hospitals. They admitted to their services patients suffering from any kind of disease that needed treatment. Special hospitals are for the most part of modern origin. In the early decades of the nineteenth century, concurrent with the rapid increase of industry in this country and the growth of large urban populations, there was an equally rapid development of medical science. There was an increasing knowledge of and ability to treat general diseases, and also an immense development in the recognition of and skill in the treatment of disease of special regions of the body. The advance was so rapid that large additional clinical facilities were needed. In this country, where the enthusiasm and energy of volunteer works have always blazed the path of progress and brought new fields of work into cultivation, the process of development of hospital service followed what is to us the natural mode. For instance, keen workers in the field of eye diseases started clinics, or dispensaries as most of them were first called, for the treatment of these diseases. One or two doctors in association established in a small way in some convenient house an institution which later has become a recognised eye hospital. This is the story of most of our best known ophthalmic hospitals—e.g., Moorfields in London; the hospitals in Edinburgh, Glasgow, Oxford, and Maidstone, to cite only a few.

It would appear that there was no idea in the minds of these early founders of special hospitals of separation or isolation from or competition with general hospitals. There was a need, so they proceeded to meet it in the simplest way. To expand an existing institution was or might be difficult. To set up something new was easy, and the new made a ready appeal to philanthropists. This method of working accounts for conditions that seem to us to-day extraordinarily anomalous. There is at Charing Cross in London a large general hospital with its own eye department and next door to it there is an eye hospital; the walls of the two buildings are conterminous. There is in Maidstone at one end of a short street a general hospital and at the other end a hospital for the diseases of the eye, nose, and ear. These seemingly anomalous conditions are explained by the natural idea of the founders of the later special hospitals to provide for new wants, as near as might be to the older foundations, which formed as it were a focus of medical work in their own and the public eye.

In later days there was indeed some spirit of rivalry in the formation of further special hospitals. General hospitals recognised the necessity for special departments in their own organisation, and these with the increasing number of new special hospitals engendered a competition for patients which was not altogether healthy in that it led to abuse of hospital facilities. Those conditions are less evident now. New hospitals are not easy to form, the tendency is to improve and expand existing institutions, but there is still some sign of excessive specialisation, especially, under the pressure of social reformers, in the provision of special clinics under statutory authority—e.g., tuberculosis dispensaries, &c.

The Acid Test of Efficiency.

The determination of the relative value of special and general hospitals must be based upon their working efficiency in regard to the patient. Which type of hospital is best for the patient, whatever be the nature of his ailment; and which in the long run fosters the best type of medical practitioner—that is to say, the practitioner most able to cope with the disability of the patient.

My answer to these questions may be given now, so that there may be no doubt in the mind of the reader as to the trend of the argument. In my judgment there can be no doubt that the general hospital is better than the special hospital, better for the patient, and better in that it cultivates a superior type of medical work.

The human body must always be considered as a whole if the medical practitioner is to minister successfully to its needs. The members of the body cannot and must not be considered as detached units. Modern medicine reaffirms and proves the Pauline dictum, "all the members of the body, being many, are one body." A defective eye may react upon the whole body or the defect of the eye may be a reaction brought about by a general bodily ailment. And so it is with disease of any other of our special organs. To limit the diagnosis to the "eye," the "nose," or whatever may be the organ under examination, is to limit the power of curative medicine and the prospects of the patient. Work in a special hospital tends to be limited, bounded as it were by a ring fence. It is a natural effect of a limiting name. That this tendency is being resisted there is ample evidence, and some of this evidence will be noted later. On the other hand, in a general hospital there is a constant recognition of the full field of medical work. There is daily contact between the general physician and surgeon, the eye surgeon, the gynæcologist, the dental surgeon, and so forth. Each of these gives to the other a daily hint of his field of work, and with that there is an unconscious widening of outlook for each member of the staff, so that no matter to what department a patient may be drafted after the preliminary examination the chief of that department is always conscious of the whole anatomy of his patient. The physician or surgeon of a department recognises that he is one of a team, every member of which is at his service in elucidating the primary origin of the disease under investigation, and through such combination there is laid the foundation of ever-widening extensions of preventive medicine.

Recent Tendencies.

The advantage of the general hospital plan of work is demonstrated by recent developments of special hospitals. It is rare now to find in a special hospital the members of the staff limited to practitioners of that speciality. On the staff of an eye hospital there will be found neurologists, aurists, and even dental surgeons. On the staff of a nerve hospital there will be found eye surgeons, aurists, gynæcologists, orthopædic surgeons, and so forth. On the staff of a lying-in hospital will be found physicians and surgeons, a physician for antenatal work, another for infant consultations, and also ophthalmic and dental surgeons. Such a range of staffing in special hospitals is proof of the desire for a wide outlook and comprehensive team work; in fact, it is an attempt to make the work of the special hospital as near akin to that of a special department in a general hospital as is possible. Again, in recent years there have been amalgamations and close associations formed between general and special hospitals whereby the special hospital has become an integral part or department of the greater general hospital.

It may be asked: Is there no countervailing advantage in the special hospital—e.g., in the intensive cultivation of one branch of work in one place? There is such an advantage. Doctors are as gregarious as other human workers. It is of interest to us to work together, especially when we are doing the same work. Minds are stimulated, ideas are kindled, and on occasions special advances are secured. But there is a risk of one-sided growth through loss of contact with general medicine and surgery or of loss from failure to know what other branches of medicine are doing. Special hospitals are not the sole means whereby we specialists intercommunicate. We have our special medical societies, our sections in the greater medical societies, and our clinical meetings in hospitals.

The Rule and Exceptions.

My conclusion is that a general hospital with a range of departments covering all modern requirements is the ideal unit of hospital organisation. It provides the maximum of benefit with the minimum of risk. But that does not mean that special hospitals should cease to exist. In a great city special hospitals may be of convenience in dealing with

* Appendix to the Sixth Annual Report of the Voluntary Hospitals in Great Britain (excluding London).

large numbers of patients of a presumably distinctive type, also for concentrating special research and teaching in universities. There may be limitation in the ground space available for a central general hospital, so that outlying clinics attached to the central hospital may be more economical, and if these are annexes of the central organism the disadvantages of excessive specialisation are reduced. Again, certain kinds of disease need long periods of treatment, and treatment in the country rather than in the towns—e.g., orthopædic cases and tuberculosis. Other disease might present danger or inconvenience in the general hospitals—e.g., specific fevers and mental disease. Safety and convenience make for separate accommodation in these cases. But there is no physician who will not agree that so far as fevers are concerned separation is a matter of convenience only and not an ideal medical arrangement. Whilst in the case of mental diseases the evidence given before the Royal Commission now sitting is conclusive that the ideal for mental cases is treatment in association with general hospitals. Something more than convenience justifies children's hospitals; they are, in fact, general hospitals for children, their smaller size makes them better units for the little ones; but even with these hospitals there are occasional difficulties in dealing with the older children, and in finance because of the relatively high cost of laboratory and physical equipments in small hospitals; both these difficulties make an association with the larger general hospital desirable. The treatment of disease of the nervous system and of orthopædic cases is commonly of such long duration and requires such complicated and special equipment that there is a real justification for separate provision. But there is no such justification for separate hospitals for disease of the eye, nose, ear, throat, skin, heart, rectum, urinary organs, for cancer cases, nor for radiological treatment. All these are better provided for in, or at least in association with, the unit of hospital organisation, the general hospital.

British and American Opinion.

So far as my information goes, this is the trend of opinion within the British medical profession both amongst men in general and in consulting practice. It is also the expressed opinion of the most recent writers on American hospitals, where the English system of voluntary initiative is dominant. Corwin[1] in a survey of the hospital situation in Greater New York writes: "The fact that so large a percentage of hospital beds in the City is to be found in the special hospitals (about 37 per cent.) raises the question of the desirability of such development." He concludes, "It is safe to say that in the City of New York in the development of special institutions the zenith has been reached, and that hospital development in the future will probably proceed along lines of greater scope on the part of general hospitals."

The situation in this country calls for the direction of wise statesmanship. The British Medical Association[2] after consideration of this matter has urged that the local voluntary committees, now existing, should be expanded so as to enable them to survey all the hospital accommodation of their areas, to determine the adequacy of this accommodation, to foster coördination between existing special and general voluntary hospitals and municipal and Poor-law institutions for the treatment of the sick; and to do so without interfering with the domestic autonomy of the several hospitals, each being encouraged to work upon those lines of local initiative which have proved so vital in local work. Further, that the duties of the Voluntary Hospitals Commission should be extended so as to make it a Standing Consultative Hospitals Committee for England and Wales, representative of all the local voluntary hospitals committees, and to act as between the Ministry of Health and the local committees in all matters concerning the hospital policy of the Ministry.

The time is ripe for a move in this direction, and it is better that such a move should come from within the hospitals rather than from without.

THE IDEALS OF SOCIAL HYGIENE.

SPEAKING at King's College on Oct. 8th on biology and social hygiene, Prof. Arthur Thomson said that the contrast between civilised society and wild nature is in many ways disquieting. Among mankind constitutional disease is rife, whereas in wild nature it is rare. Nature is all for health, whilst to man health is often secondary. Nature is always sifting for health, but civilised society shelters cobbles and coddles. The lamentable exhibition of the pathology of sex amongst men is due partly to repressions and suppressions, partly to mental materialisation, and partly to the departure from the old method of preferential mating. Amongst animals sex pathology is rare. In a plea for clear thinking, Prof. Thomson condemned "the fallacy that the endocrine glands determine the personality in ordinary men and women." The healthy body without the healthy mind is only half way to happiness. There is need for a freshened enthusiasm for health and incidentally for beauty. Prof. Thomson suggested ways of promoting such enthusiasm, but insisted that social organisation and ideals must be improved. "We are enmeshed," he said, "in a net of social traditions and trammels handed on from the early industrial or palæotechnic age." Wealth without health is vanity.

The lecture was the first of a series to be held on Thursdays, at 5.30 P.M., at King's College under the auspices of the British Social Hygiene Council. The subject of the course is the Ideals of Social Hygiene, and the lecturers will include Prof. Cyril Burt, Dr. Malinowski, Prof. Percy Nunn, Prof. Winifred Cullis, and Sir Arthur Newsholme.

THE FOULING OF FOOTWAYS BY DOGS.

To the Editor of THE LANCET.

SIR,—I am glad to see from your annotations that you are taking notice of the fouling of the pavements by dogs in Kensington. I have felt very strongly in the matter and went to the M.O.H. for Kensington about it, and I think it was on my suggestion that a notice on the subject was inserted in the tax-note for dogs, but I wish I could feel that any real good has so far been done. The pavements are as foul as ever. I do not think any good will be done until the police can be persuaded to deal with the nuisance, and perhaps your powerful words may help them. I do not think that the traffic can have anything to do with the case. It is a matter for the owners of dogs, who do not take the trouble to train them properly. Why Kensington should be the only borough to take the matter up I do not know. The need for remedy is obvious in all big towns.

I am, Sir, yours faithfully,

WALTER RIGDEN.

West Bolton-gardens, S.W., Oct. 11th, 1925.

A LOCAL PUBLIC HEALTH GUIDE.

THE medical officer of health of St. Pancras, DR. G. Sowden, has compiled for the use of the medical practitioners in the borough an extremely useful booklet of information. This booklet was circulated during Health Week. It is of handy size for the pocket and contains about 13 pages of printed matter, showing in alphabetical order not only the various public health activities of the borough council, but also information with regard to ambulances, voluntary hospitals, and voluntary societies of all kinds. The function of the maternity and child welfare centres is explained in detail, in order to remove any misconceptions that may exist. The duties of medical practitioners with regard to notifiable diseases, including those notifiable under the Factories and Workshops Acts, are given. The work of the tuberculosis dispensary is explained and the facilities provided with regard to special schools and school clinics, &c., are enumerated. We think the booklet will prove very valuable, especially to those practitioners who have recently begun to practise in the borough. The idea seems well worthy of imitation in other districts.

Messrs. L. G. Coade and Co., electrical engineers, of 55, Temple-row, Birmingham, invite medical men to inspect various models of the K.B.B. ultra-violet lamps for medical therapy.

Mr. John C. Carr (Registered Dentist, 1922) writes that after abundant opportunity of observing the various methods of anæsthetic administration by dentists in America and this country, he is satisfied that gas and oxygen is the one and only general anæsthetic that should be used in the extraction of teeth. But however secure the dentist may feel of his anæsthetic and of his skill as anæsthetist, in any case of doubt as to the presence of existing disease or debility a dental operation should be postponed until the patient has been referred to his medical adviser for examination. In dealing with male patients Mr. Carr's practice is, generally speaking, to give a local anæsthetic and extract only a limited number of teeth at one sitting. Should a general anæsthetic be insisted upon, the physical condition being equal to it, gas and oxygen is given. In women he regards gas and oxygen as perfectly safe, even during pregnancy. He uses the combined apparatus of Hewitt and Weller, the valve being controlled by the left hand.

[1] The Hospital Situation in Greater New York. Report of or Survey of Hospitals in New York City by the Public Health Committee of the New York Academy of Medicine, prepared by E. H. Lewiniski-Corwin, Ph.D., New York and London, G. P. Putnam's Sons, 1924.

[2] Policy affecting Hospitals. Section A. on Inter-relation and Coördination of Hospital Provision. British Medical Association, London, W.C. 1, 1925.